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Textile World

NEW YORK
ATLANTA

SEPTEMBER, 1939

BOSTON
GREENVILLE

A McGRAW-HILL PUBLICATION

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FIFTEENTH ANNUAL
RAYON YEAR BOOK
NUMBER

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TEXTILE WORLD (formerly *Textile World Journal*) with which are combined *Textiles*, *Posselt's Textile Journal* and *Textile Advance News*. Published monthly. United States and Possessions, Canada and Latin American Republics, $3 per year; all other countries, $5, U. S. currency, or 20 shillings. Single copy 35 cents.

Of this issue, 13,200 copies were printed

Member of Audit Bureau of Circulations
Member of Associated Business Papers, Inc.

Contents copyrighted, 1939
by McGraw-Hill Publishing Co., Inc.

McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York, N. Y.

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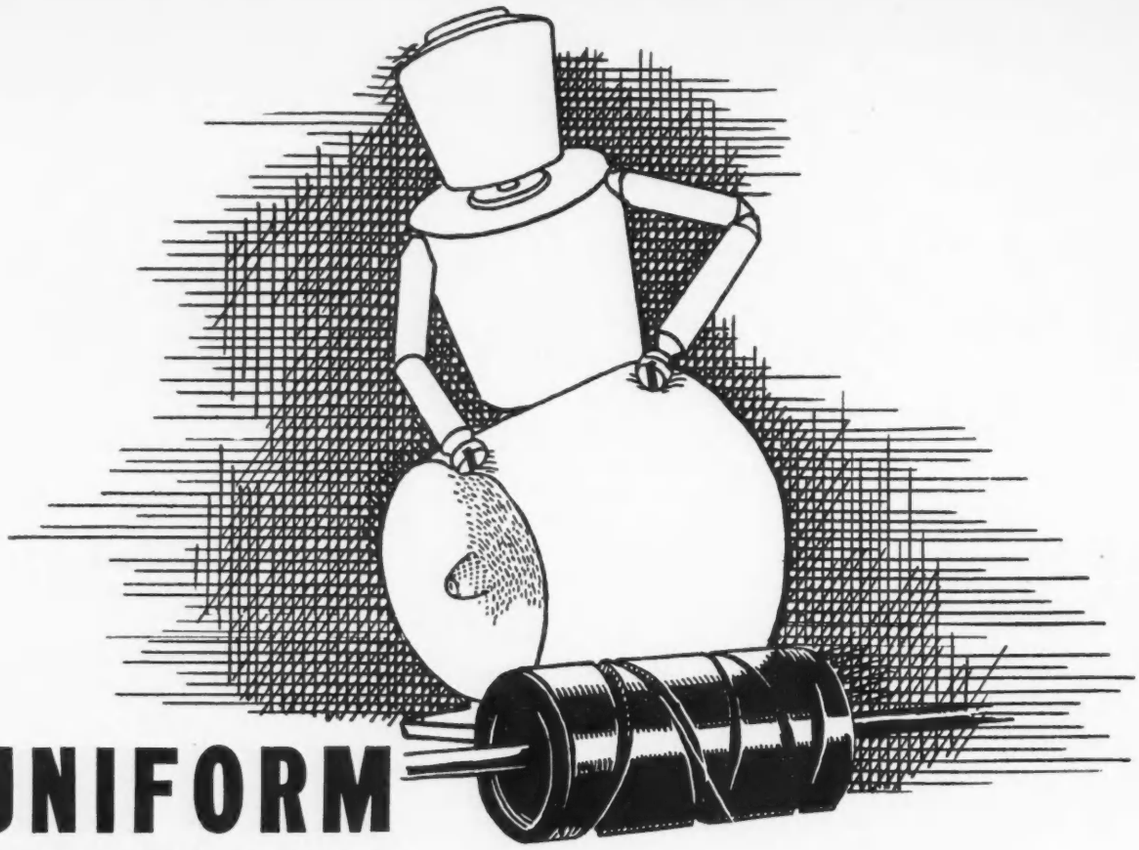

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TEXTILE WORLD

DOUGLAS G. WOOLF, Editor

When the World Goes to War

GREAT CRISES tend to reestablish a sounder sense of values. When the world goes to war, most of our affairs seem piddling. The civil war between AFL and CIO; the battle between the New Deal and the Antis; the pros and cons of a 32½c minimum wage—these and other problems which a short while ago seemed cosmic in importance, now dwindle to something approaching their right size.

What do they matter? Across the water, the world is again at war: at war this time in what seems to be a decisive struggle, so far as this particular civilization is concerned.

There is no need to question where the sympathies of our readers lie. But sympathy and emotion must be subordinated to the job which the United States has to do. That job is, at one and the same time, an extremely selfish one and an equally selfless one.

It is this country's job, selfishly, to do everything to safeguard and protect the interests of the people of the nation; to advance their economic well-being; to keep them out of the inferno into which some of the nations of the Old World have been plunged, and on the brink of which so many more nations overseas are now trembling.

It is this country's job, selflessly, to maintain its position as a great neutral, holding in effect the balance of world power, and ready and eager to throw that balance toward world peace and toward the saving of millions of lives. At the moment, it seems that this nation is far more vital to the future of the world, as such a neutral, than it would be if it threw its force on the side where its sympathies lie.

TOWARD THE ABOVE END, what should the average American do? Or, to narrow it down to the field of this publication, what should the average American textile manufacturer do?

He should do, mainly, one thing: Buckle down to his own job, and to those things which seem piddling. There is no alternative. And this means presidents, treasurers, managers, technicians, superintendents, overseers, second-hands, section-hands, operatives, and all the other men and women who make up this great industry.

Specifically, what can the textile industry expect? An erratic business curve during the war and immediate post-war periods, with the trend of prices and demand undoubtedly upward. Many economists expected a period of paralysis and collapse at the outbreak of war. The security and commodity markets, however, with memories of the last war, apparently decided to by-pass that period and to head straight for the bull market which war buying induces. Whether they went too far at the start, or whether there is much more of an advance in sight, is a question no one can answer at this writing.

But this much is certain: The extent to which textile manufacturers can maintain sound price and production policies during the initial groping period and during the boom which will probably ensue, will determine the extent to which this industry will profit. A bull market, out of hand, is ultimately more disastrous than a bear market, out of hand. There is a limit to the latter but none to the former. The time to remember that is during the boom—and not years later. We wish we could make these words shout out loud. There is a wonderful chance ahead for the industry to demonstrate the restraint it should have learned from 15 years of travail.

Next, there will be no devastating effects upon supplies for textile mills such as occurred with the outbreak of war in 1914. We can remember the care with which a textile man would put a pound of a certain dye away in his safe. Since then, we have become self-contained, as a nation, in this and other directions.

Finally, greed for war profits, if and when this country joins up, might as well be curbed right now, because it will not be satisfied. The temper of legislation offered at the last session of Congress assures that. To quote from a book reviewed on page 56 of this issue: "No one will make money in another war. The Government will see to that. From the very start a dictatorship will take over and you will become part of its big war machine."

But every textile man—and every other American—must fight hard to avoid the hysteria which would precipitate this country into the war. Eventually, we may have to get into it, but there is no reason for it now. Once war comes, it is impossible for the nations involved to maintain anything approaching a balanced attitude. While we still have ours, let us use it and work hard to preserve it.

THE EDITOR SAYS

Stop, Look and Listen!

◆ "The science of synthetics, through which new substances are brought into being from coal, milk, cotton, wood, from water and the elements of the air, seems to broaden with each forward step . . . Synthetic fibers make possible textile filaments and fabrics with entirely new characteristics, more durable and with wider utility than any now in general use. Here are new industries in the making, with benefits in the way of expanded employment and consumer gains that can only be surmised."—*From semi-annual statement of General Motors Corp.*

◆ Synthetic fibers, new coatings, plastics, colors, rubber substitutes and alloys are being employed today to make new and cheaper goods which will open up new markets for old manufactures. Millions of products are possible by new combinations of chemical elements. The sharpest competition today is not between industries and goods, but between industries and materials."—*From a survey conducted by the American Chemical Society.*

◆ "Chemistry may now produce fibers out of almost anything: air, water, coal, gas, or what have you . . . . . Eventually synthetic fibers may completely replace natural fibers . . . . . And it is not impossible that completely synthetic *fabrics* will eventually be produced—fabrics which by-pass the preparatory equipment, the spinning frame, and the loom."—From introduction, by Douglas G. Woolf, to the Special Rayon Section of this issue of TEXTILE WORLD.

And, as we say further in that introduction, those manufacturers who sense these possibilities are the ones who will live; those who ignore such possibilities may pass out.

That is why we suggest that you turn to page 73.

Two Little Items

Once in a while we get a little sorry for Secretary Wallace and wonder if maybe folks ought to stop picking on him. And then we're apt to read something which makes us so mad we decide nothing is too bad to say about him.

There were two little items in the morning papers one day last month. One read:

"The Census Bureau reported today the cotton carryover at the beginning of the cotton year of 1939–40, on Aug. 1, was 13,032,611 running bales—the largest quantity of cotton held at this time of the year in the history of Government statistics."

The other item, printed right below the first in the paper we read, went like this:

"The Commerce Department announced today that United States exports dropped during the last cotton year to the lowest figure in 60 years."

Now isn't that something! When one thinks back over the grandiose plans Mr. Wallace had for the aid of cotton agriculture, and the vast sums of money that have been paid out en route, this exactly contrary result is nauseating.

Is it any wonder that the International Cotton Federation went on record with the statement that "the present one-sided policy of the U. S. Government has seriously restricted the sale of American Cotton"? (See page 110) Is it any wonder that the Federation urged the Government "to adopt a definite and long-term policy relative to cotton releases"?

Altogether, it's a sorry situation.

The Mill Village

For nearly 20 years we have been pointing out in these columns the seriousness of the burden which a mill-owned village places upon a textile manufacturing company. From time to time we have urged that company houses be placed upon a pay-their-own-way basis, not only to remove the operating loss but to avoid the criticisms and comparisons which the present system invites.

Recent trends have indicated a growing sympathy with this point of view, and in fact a number of manufacturers have taken steps to put their rents more in line with actual costs. Still more recently, actual sales of mill villages to the employees have grown in favor. This development is summarized on page 64 of this issue.

This can be chalked up as one more indication of textile progress.

STILL OPEN . . . BUT HURRY

In last month's issue we invited readers, whether mill men or equipment manufacturers, to send in for our November issue short articles showing how individual manufacturers have reduced costs, increased production, improved quality of product, or otherwise bettered the efficiency of their plants through modernization of buildings and installation of new productive or auxiliary equipment.

This invitation is still open—but hurry up! The items should be in our hands by Oct. 1. If possible, photographs of the installations should be included.

For results, see our Annual Equipment Check-Up Number—featuring Modernization for Profit—out in November.

Calling All Sweethearts!

Hold everything for Saturday, Oct. 21. That has been selected as "Sweetest Day." The theme! "Make Somebody Happy."

The Day, it is held, will eclipse Mother's Day and Father's Day—both synthetic products of commercialism—and even Valentine's Day.

By strange coincidence, members of the committee for observance of "Sweetest Day" include representatives of Huyler's, Fanny Farmer Candy Shops, Loft, and points west.

Now we yield to no man in our desire for sweetness and light. We think that would be grand. As Father Divine so aptly put it: "Peace, it's wonderful." And so we dedicate this publication to an observance of "Sweetest Day"—Oct. 21. Remember the date.

And mebbe we can stuff some of the Cupids with surplus cotton. Non-commercially, of course. Purely for sweetness sake, to make somebody happy.

Believe It or Not

We don't know whether this is true, but we heard it—and we can easily believe it.

Of a small group of club-women who went to Washington to fight the good fight for the consumer at a hearing on wool-goods labeling last spring, five thought that "virgin wool" meant wool from virgin sheep. Fortunately, there was one informed woman along who was able to tell the others that they were wrong—and that the term meant wool from the Virgin Islands!

Textiles Join Macabre War Dance

Boom comes, instead of collapse—Markets must find safe trading level

By DOUGLAS G. WOOLF

Scene on New York Stock Exchange during war boom on Sept. 5.

TEXTILES joined in the rather hysterical upswing which greeted the outbreak of the war in Europe, in domestic security, commodity and goods markets. Prices of raw materials shot up and there was active buying of many fabrics, at improved price levels.

To the man in the street, this was all quite surprising. For months, it had been generally accepted that the first effect of war would be temporary paralysis of business and sharp declines in stock and commodity prices—with ultimate recovery and probably a boom period if the war continued for any length of time.

By now, probably, the man in the street has recovered enough to be able to murmur: "I knew this was going to happen." But actually, he didn't. The ones who did know it were mostly the old-line traders who learned a lot in the years from 1914 to 1918 and who applied what they had learned just as soon as the new war of 1939 broke out.

But the real problem is what's going to happen in these initial weeks and months before this war settles down to a long struggle, providing it does.

As we write this, there is no yardstick for values. Commodity prices—and especially textile raw materials—were at a low price level when this war broke out. Manufacturing margins on goods were not on a profitable basis. Inventories in many quarters were low. The obvious result was heavy buying to replenish stocks, and price advances in response to that demand. To that extent, the first reaction was a perfectly reasonable one.

However, it must also be remembered that it was speculative in character. Materials were not being bought for immediate use but as protection against probable further price rises. It is impossible to tell how much more of a price advance is justified, if any. There is first this speculative phase to go through. When we get down to a basis of supply and demand, which should follow this first phase, there will be some guides as to where a safe trading level is.

Each day, of course, will help to clarify the situation—and possibly by the time this issue reaches its readers, there will be more certainty as to the outlook. However it is the writer's opinion that there will at that time be still weeks ahead when the markets will be more or less "loaded" and the person who takes too long a chance on them will run the risk of getting burned.

For the future, there is no doubt that everything points toward a rising trend in both prices and production. In the first place, the domestic situation has been improving consistently in recent months and has been held in check only by the international situation. Now the latter has at least come to a showdown —and in addition has proved to be an immediately stimulating influence.

The great question mark, of course, is how long the war will last. This time, there is none of the talk that we heard in 1914 about a month or six weeks or something like that. Memories of a four-and-a-half-year struggle will probably make people over-estimate rather than under-estimate the length of the present war. We know that some people are thinking in terms of 10 years and 25 years. That is probably silly, but certainly at the moment the odds are in favor of a long rather than a short conflict. Anything may happen overnight to change this picture, but that's the way it stands at present.

With that in view, there is even greater necessity for the development of what might be called a business wartime policy. If this is something we are going to have with us for years, we shall have to get adjusted to it. The next few months will go a long way toward determining that policy.

Then, of course, there is the final question of whether this country can stay out of it. This is also tied up to the question of whether this country really wants to stay out of it. At the moment, the majority opinion undoubtedly tends toward complete neutrality. There is however a strong minority which feels that it would be to our own self-interest to get into this thing right off the bat and that we would thereby shorten the war and save millions of lives. There is more support for this feeling now than there was at the beginning of the last war. Whether that minority feeling becomes a majority, it is impossible even to guess at this moment. Meanwhile, strict observance of our role as a neutral nation is of course the only policy.

COMING TO THE individual branches of the textile industry, it would not be helpful here to go into detail concerning their initial reaction to the start of

hostilities abroad, because so much may happen between now and the time this appears in print. The broad trends at the start, however, were as follows:

Volume of cotton goods sales shot up, and in the first business day after declaration of war the Worth Street trading was estimated at 150,000,000 yd., the busiest day in nearly 20 years. Cotton futures advanced sharply, as did yarn and goods prices. Raw wool prices advanced and lines of woolens and worsteds were withdrawn at the start. Rayon producers adopted a waiting attitude but generally expected sharply increased demand and inevitably higher prices. The first action of raw silk futures was to reach their 15¢ trading limits on the first day but later they declined. Knit goods manufacturers went into the market for raw materials, and advancing prices on finished goods were believed inevitable.

Altogether, it was the most exciting session that the textile markets have had in many a year. It would have been a lot of fun if it were not for the fact that it had its origin in one of the most unbelievable facts in history—the start of another war about 20 years after the conclusion of the last one; and if it were not for the further fact that every intelligent man knows the bill will eventually have to be paid.

War... and Textiles

What will happen to the markets for cotton, wool, rayon, silk?

From TEXTILE WORLD'S Washington Office

THE WELL ESTABLISHED FACT that war is hard on clothes means a speeding up of the consumption of all the fibers entering into their manufacture. Apparel consumes 40% of the domestic production of cotton and it is believed that this figure is approximately correct for world consumption.

Industrial uses of cotton call for another 40%. Most industries are stimulated by war. The remaining 20% of the cotton used goes into household articles. Wages at war-time rates result in heavier purchases of those articles.

These facts lead Government specialists to believe that the demand for cotton will increase materially under war conditions.

The present situation differs from that of 1914, in that other countries are producing more cotton than they were then. Cut off from the German market those supplies will be available to consuming countries not affected by the blockade. The United States itself loses an important customer in Germany. The increased cotton that would be made available is expected to hang over the market for a period but that period will be shorter than otherwise had foreign buyers not been waiting on the subsidy of American cotton. Stocks in the cotton-consuming countries, as a result, are lower than otherwise would have been the case.

Another new factor is the development of rayon and staple fibers since the world war. Countries having manufacturing capacity for those materials are expected to speed up production to safeguard their exchange.

Brazilian cotton producers are expected to suffer more than American producers during the early stages of war. Much of the Brazilian cotton used by Germany has been secured by barter. Brazil will be cut off from the manufactured articles it was to receive in payment. With the slump in the pound sterling, the British are expected to concentrate purchases in countries where they have credits. As the British have large holdings in the United States and relatively small holdings in Brazil, it will be the tendency, it is believed, to liquidate American securities to pay for cotton rather than to use a depressed pound in other world markets.

If Japan remains neutral her purchases of cotton will increase greatly, it is predicted.

With regard to wool, the situation in the United States has changed decidedly since the world war. At that time the United States was largely dependent upon foreign sources for most of its apparel wool. Under present conditions the United States producers could supply practically all of the country's apparel requirements. In 1938 the United States produced 372,810,000 lb. of shorn wool, and 63,700,000 lb. of pulled wool. The 1939 production will exceed those figures by 5%, the Department of Agriculture estimates. The 1938 consumption of apparel wools was 514,400,000 lb. Apparel wool imports in 1938 were only 32,635,000 lb. The United States is still dependent upon foreign sources for carpet wool. Industries using that raw material probably would be inconvenienced greatly in the event that ocean bottoms should be required for the transportation of more essential cargo.

Under present conditions there are few war uses for silk. Waste silk probably would be used for such war purposes as continue to exist. So long as Japan does not become a party to a European war she doubtless would be particularly anxious to dispose of her silk in the United States so as to get dollars for the purchase of cotton.

What Will Happen

And what to do

WHEN WAR COMES; edited by Larry Nixon; The Greystone Press, New York; 290 pages; $2.25.

This book is the result of a woman's anxiety. Alarmed by the headlines, she wanted to know what would happen to her child, her husband, and, lastly, herself, in case we should try to solve any of the world's problems by recourse to war. Realizing that the woman's questions, and others which follow in natural consequence, must exist unanswered in the minds of other persons, the editor of this book sought the services of five men, each an expert in his field, to answer them.

The authors of When War Comes have outlined the steps which each individual can take toward personal preparedness. The subject is considered under six major headings: Your Property; Your Business; Your Job; Your Living Requirements; Your Person; The Bill—Win or Lose.

This reviewer finds the book a most fascinating one. As timely as this morning's newspaper, it answers questions which must be in everyone's mind. Textile manufacturers of course will be directly interested in the chapter, Your Business, but after all the textile manufacturer is first a man and he will be vitally concerned with the other chapters. The salaried man in the textile industry will possibly find his major interest in the chapter, Your Job.

The picture is not a pretty one, but no one can draw a pretty picture about war. It is realistic, practical, and as accurate as any such analysis can be. It is a good book to have in one's background.

Stamp Plan to Be Used for Cottons?

Same scheme as applied to food may be extended to textile field

From TEXTILE WORLD'S Washington Office

SUCCESS of the stamp plan as applied to foodstuffs has increased the prospects for its application to cotton goods. Before officials will make a final decision in the matter they want to make sure of the solid support of retailers. Different groups of retailers are being called in for conferences. To justify the plan as a means of moving cotton surpluses, more cotton goods must be sold than would be represented by the actual stamps that would be used. Inauguration of the stamp plan provides a legitimate excuse for an aggressive sales campaign.

Experience with the food stamps shows that for every dollar of stamp sales there was an additional dollar of cash sales in stores where there was aggressive merchandising. With the opportunity afforded by the stamp sales, it is believed that stores retailing cotton goods can make an even better showing.

Much consideration has been given the possibility of extending the cotton goods stamps to low-income groups not on relief. It practically has been decided, however, that the certification of eligible families would involve more administrative machinery than could be justified at this time. Should the plan prove successful in actual practice there then would be a better opportunity to extend it to families not on relief. A study made by the Department of Agriculture shows that if the 20,000,000 families in the United States with incomes of less than $2,000 a year were to spend as much for cotton goods as those in the $2,000-$3,000 bracket, it would mean an addition of 2,000,000 bales to the domestic consumption of cotton.

In addition to the benefit accruing to the cotton farmer there would be benefits to the cotton mills, to the railroads and to the wholesale and retail dry-goods industry. On such items as mattresses, comforters, blankets, sheets, towels, overalls and piece-goods it is figured that approximately 20¢ out of each dollar goes to the cotton farmer. The manufacturer gets 50¢, while the transportation and merchandising concerns get the remaining 30¢. To whatever extent it is possible to stimulate the consumption of cotton goods, it would be a substitute for any works plan. In fact, it is characterized as a private works plan in cotton mills and in the handling and transportation of cotton.

A separate stamp would be used for cotton goods. This stamp would be pasted on cards by the merchants and cashed at the bank just as are the food stamps.

One of the effects of the food stamp has been to freeze a portion of the relief expenditure for food. That has meant a more adequate and a better balanced diet for the people on relief. In the same way the cotton stamp would freeze a part of the relief wage and make more certain that the family on relief would have more clothing, more bedding and more towels. The stamps would be good only for the purchase of the heavier kinds of cotton goods.

Another argument used for the stamp plan is the support which comes from civic and welfare organizations. It would be difficult to get such organizations to get behind a sales campaign for any particular commodity were it not set up on this basis. Such organizations have contributed importantly to the success of the food stamp, and it is believed they would be just as active in encouraging the proposed cotton stamp plan.

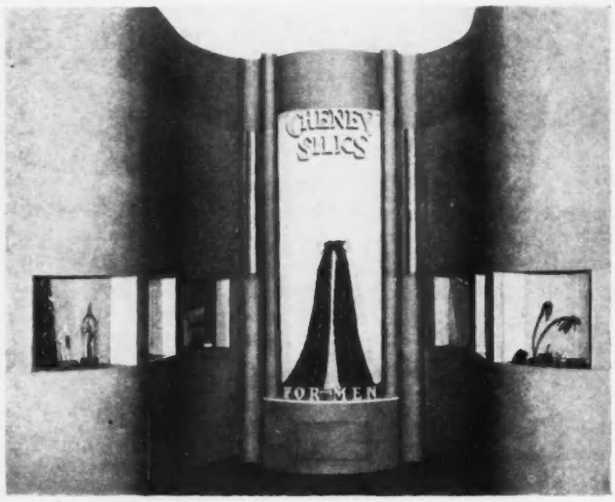
As there are 14,648,172 families in the United States with incomes of $1,500 and less, any plan that looks toward even a slight increase in the per family consumption involves a large volume of cotton goods.

Wide World Photo

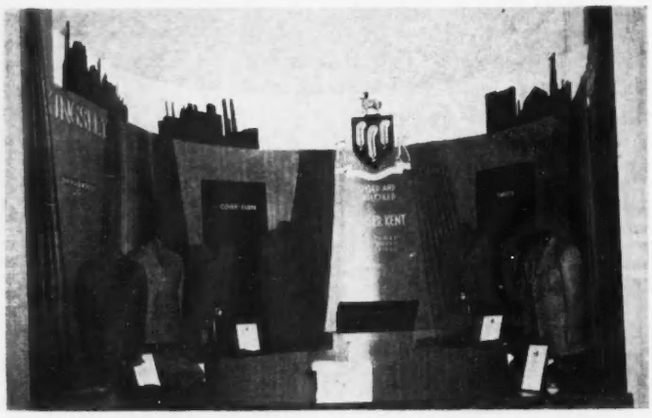
A resident of Seattle purchases groceries with stamps—a similar scheme is planned for cottons

More Textile Exhibits
at World's Fair

The Botany Worsted Mills exhibit features a fountain with a giant statue of the trademark of Botany wrinkle-proof ties. Surrounding this are window displays showing Botany's fabrics for men's and women's clothing and on the ceiling a map dramatizes the breadth of Botany's distribution



Cheney Bros. in their exhibit feature their cravats for men



Roger Kent, clothiers, feature the unfinished worsteds of Kingsley Co., the covert cloth of Cyril Johnson Woolen Co., tweeds from Strong, Hewat Co., and worsteds from Princeton Worsted Mills

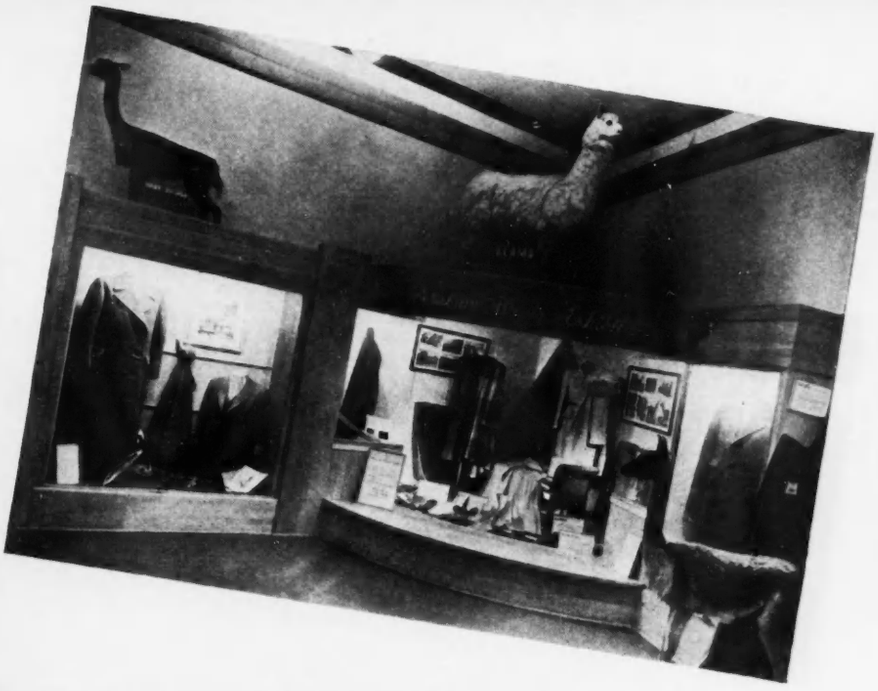
The more important corduroy manufacturers grouped together and produced the unit exhibit shown above stressing corduroy, "the sports fabric of today and tomorrow"

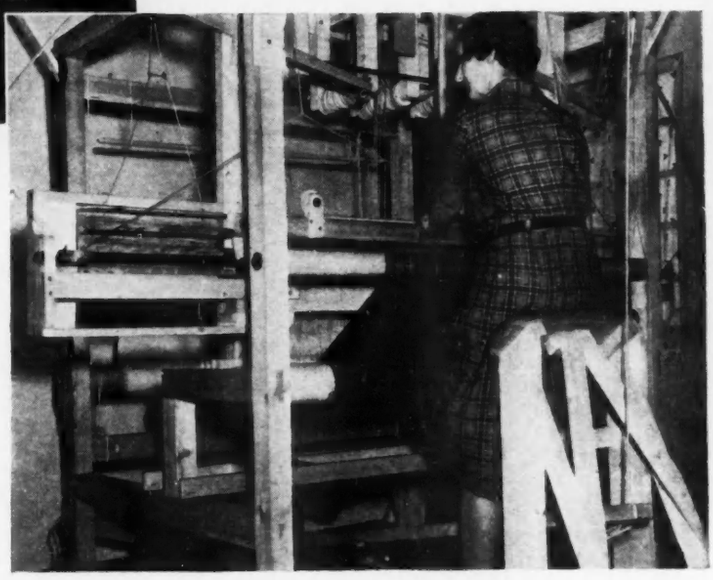
SINCE WE RAN our first collection of textile exhibits at the New York World's Fair in the June issue of TEXTILE WORLD, a number of other such exhibits have been completed. The pictures shown herewith include all that we have been able to lay hands upon since the first batch came through.

The present selection is drawn largely from the "Man" Building and includes Botany, Stehli, Cheney Bros., a group of woolen and worsted manufacturers in an exhibit sponsored by Roger Kent, and a group of corduroy manufacturers. S. Stroock & Co. exhibits fabrics and garments made from the rarer fleeces in connection with an exhibit in the Peruvian Building. The Olsen Rug Co. exhibit is in the Home Furnishings Building. In the Rumanian House there is an exhibit of a typical dwelling room showing profuse use of textiles in floor coverings, draperies, etc. Finally in the amusement section there is an exhibit of Highland home weaving in "Merrie England."

These exhibits, taken in conjunction with those illustrated in our June issue, cover the more important textile exhibits of the Fair, although there are others to be found in several of the foreign buildings and in certain of the State buildings. In our August issue we ran a group of pictures showing the Fair's exhibits of machinery, accessories and supplies such as might be used in erecting, modernizing or maintaining a textile mill.

In "Merrie England", the Highland hand-spinning and weaving industries are on display (see above and at right)





S. Stroock & Co. supplied the fabrics, and garments made therefrom, shown above, in the Peruvian Wools exhibit in the Peruvian Pavilion. The fabrics are made from llama wools and vicuna, the latter being the world's most valuable and exclusive textile

A Rumanian living room is on display in the Rumanian House, heavily draped with handicraft textiles of all varieties

Olson Rug Co. makes a direct appeal to the consumer with its exhibit of samples, and a dramatization of its plan for accepting old rugs and clothing in part payment

"Faces We See" Gets Month's Honors

Book on southern mill life is Public Relations Event No. 1—Textile Movie Planned

With this issue, we conclude the first year of our Public-Relations Campaign, which was launched with a special section in the October 1938 issue. During the year, we have rated from time to time the various efforts in this field, in textiles. As we plan for the second year of the campaign, we are particularly interested in the enterprises of the last month, summarized below.—**Editor.**

TEXTILE WORLD'S mythical award for Public Relations Event No. 1 goes this month to "Faces We See," by Mildred G. Barnwell, executive secretary of the Southern Combed Yarn Spinners Association of Gastonia, N. C. This book has just been published by that association, of which J. Harold Lineberger is president.

The reason for this award will be immediately obvious to any textile man who picks up a copy of the book. It converts what is too often portrayed as a liability—the status of southern mill workers—into an irrefutable asset for the textile industry. Probably in no way could the real status of southern cotton manufacture as a socializing force be portrayed so graphically as by the method Mrs. Barnwell uses: that is, by allowing the camera to speak largely for itself. It is true, today, that the camera sometimes *does* lie—what with the growing interest in trick photography—but in "Faces We See" there is a series of real-life photographs which give a completely truthful picture of southern mill village life.

Although the work is confined to the combed yarn area, it actually tells the social story of the southern textile industry as a whole—and as such should earn the gratitude of all manufacturers in that section. This was the sort of thing, incidentally, that we had hoped the industry might portray at the New York World's Fair, in the erstwhile Textile Building,—a now defunct project. It is the sort of thing Avondale Mills have done with their movie "Destiny of Dixie." It is the only sort of thing which will substitute truths for the half-truths and lies planted in the public mind by pressure groups, would-be reformers, and free-lance writers who are also free of conscience.

Mrs. Barnwell's book is simple in structure and expression. It consists of three main chapters, each incorporating a collection of superb photographs. The first, entitled "Southern Mill Folks," tells briefly and most interestingly the story of the background of the southern mill workers, of that thrilling social transformation which followed the trek of so many thousands from mountain to mill. Then the pictures in this section show just how these people live today—what they do with their leisure time, and what facilities for living the mills provide for them.

The second chapter, "From Bale to Bolt," takes the layman through a cotton mill, shows him every step in the

"FACES WE SEE"—One of the illustrations from the book on southern mill life. The caption for this particular one reads: "Nearly 50 years ago a little boy nine years old started to work in a cotton mill as doffer for two young girls in the spinning room. Today the third member of the trio owns the modern air-conditioned plant in which the others, these two old darlings, work. All three are proud of their long years of association."

Mill workers model gowns from their own plant's products at Shannon, Ga., style show conducted by Southern-Brighton Mills

intricate series of processes, and explains them all simply and clearly.

The third chapter, "Meet the Reeses," completes this pictorial journey by going behind the scenes with one actual mill family, and portraying the events of a day in the life of that family.

Finally, a fourth section, "Combed Yarn Mill Facts," gives the reader additional information on the industry itself: where its money goes, how its wage rates stand, the background of labor legislation in North Carolina, etc.

The book is being widely distributed among key members of the public, editors and reviewers, libraries, and other agencies whereby public opinion is moulded. It is available at the office of the Southern Combed Yarn Spinners Association, Gastonia, N. C., at a price of $3.00.

The photographs were taken by Bill Baker, of the North Carolina Department of Conservation and Development, under the direction of Mrs. Barnwell. The negatives are on file with the News Bureau of that Department, at Raleigh, N. C., and copies may be had upon request.

This is a book which cannot be misunderstood. It tells a straight story—simply and convincingly. It is the ideal antidote for the poisonous misrepresentations so often hurled at southern cotton mills.

AN EVENT in the making which will undoubtedly win the public relations award for the month when it actually transpires is the production of a motion picture of the cotton industry in technicolor. It is stated that the first reel of the film, for which contract has already been let, is expected to be ready for release about Oct. 1, and will be distributed through Columbia Pictures for showings throughout the country. The producer is B. K. Blake, Inc. The script was written by M. D. C. Crawford. The undertaking is being carried out under the direction of a Motion Picture Committee consisting of the heads of a number of the trade associations within the industry.

The first reel which has been contracted for is only the beginning of a much larger project which will eventually include four or five reels. It will portray the growing of cotton and the processes of harvesting, ginning and distributing fiber as a raw material; the operations of manufacture, including finishing and fabrication; scenes from the community life of the textile areas; important uses of cotton and its products; and the historical background of the industry, including the early stages of development in New England and the South.

In this first reel, emphasis will be placed on highlights of cotton agriculture and cotton industrial activity to provide a comprehensive understanding of the industry and a background adequate to an effective presentation of more detailed treatments to be contained in subsequent films.

The picture is being financed through voluntary individual contributions from all members of the industry and allied activities. Subscriptions are being solicited by the Motion Picture Committee and are being directed to all those whose major business activity or source of livelihood is associated with cotton.

* * *

A style show was recently conducted by the Southern-Brighton Mills at Shannon, Ga., at which employees of the mill modeled the gowns. One of the purposes behind the idea was to impress the mill organization with the character of the finished goods, since all they ever see in the plant is the gray goods. This was a chance for the operatives to see not only the finished fabrics but garments made therefrom. The models were chosen as the result of a popularity contest. Those who attended the show from the New York market were enthusiastic regarding the beauty and the grace with which the workers displayed the gowns.

* * *

"America's Destiny" was the title of a full-page paid advertisement run by Continental Mills, Inc., shortly after declaration of war. The page is devoted to consideration of the importance of this country keeping neutral. It concludes: "America's destiny lies within America. She must be free to work out her own destiny. By solving her pressing social and economic problems and by affording to all her citizens an opportunity to share in the blessings which peace and prosperity bestow, America can set an example of tranquility and progress that may yet serve as a guide to a war-weary Old World. Let America work out her destiny in peace!"

Hosiery Gets Wage-Hour Order

First decision meets wide approval but some dissent—Textile wage moves

By PAUL WOOTON
Washington Correspondent, TEXTILE WORLD

COMMENDATION OF THE WORK done by Wage-and-Hour Industry Committee No. 3 is heard here. While there are differences of opinion with regard to the minimum wage of 32½¢ per hour in the seamless hosiery industry and of 40¢ per hour in the full-fashioned industry, which the committee recommended unanimously, George W. Taylor, the chairman, is given credit for having brought about an agreement with a minimum of friction and in a way that is possibly least objectionable to the minority which entertained other ideas. As a consequence, approval by Administrator Elmer F. Andrews was taken for granted and was forthcoming on Aug. 14. The effective date was fixed as of Sept. 18 which gave the industry opportunity to make the necessary adjustments.

This was the first wage order based on an industry committee recommendation.

PRINCIPAL POINTS covered in the administrator's findings with regard to seamless industry follow:

Manufacture of seamless hosiery and manufacture of full-fashioned hosiery are separate and distinct branches of the hosiery industry.

Finishing and dyeing plants have an intimate connection with the full-fashioned branch of the industry.

The 32½¢ minimum will result in a 7.3% increase in payroll and a 3% increase in manufacturing cost of seamless hosiery. Manufacturers will be able to absorb the major portion of that increase.

Chain stores and retailing concerns can absorb a portion of the increase without increasing retail prices.

Minor increases in wholesale prices will not be carried over into retail prices.

Any increase in retail prices that may result will not be sufficient to reduce the volume of consumption.

The minimum wage will not accelerate technological change nor cause substantial curtailment of employment.

Evidence is not convincing that the 32½¢ minimum will result in substantial curtailment of employment, even in the low-wage plants producing hose to retail at 10¢.

At worst no more than 2,400 workers in the seamless industry would run the risk of losing employment.

NRA caused an increase in labor cost of over 250% in some plants without substantial curtailment of employment.

The rate of plant mortality will not be substantially increased or changed by the new minimum wage.

Congress did not intend that a recommendation should be disapproved because marginal plants may be unable to maintain modern standards of efficiency.

Some plants in the low-wage group resort to unfair methods of competition.

Competitive conditions are not appreciably affected by differences in production costs between any definable groups or regions.

Transportation costs do not appreciably affect competitive conditions.

Competitive conditions are not appreciably affected by differences in living costs.

No classification is necessary.

Principal points covered in the administrator's findings with regard to minimum wage rates in the full-fashioned industry are:

Manufacturers will be able to absorb the 1% increase in wage costs.

Even if some manufacturers pass on their costs they will be absorbed by the wholesaler or retailer. A large portion of the burden of the increased wage will be distributed among plants where it will have a negligible effect.

The 40% minimum will affect an insignificant portion of the total number of employees.

* * *

A point made by the administrator was that the seamless manufacturer customarily compensates fluctuations in cost of raw materials by changes in the construction of his product. He contends that the industry as a whole is nominally profitable and that the demand for seamless hosiery, particularly in the cheaper grades, is increasing and that new mills are being established from year to year. Even if the manufacturer is able to pass on some of his increased cost, the administrator says that retail mark-ups are very substantial and that the hosiery department is among the profitable sections of a retail establishment. Large wholesalers and jobbers also are able to absorb increases. Despite testimony to the contrary, the administrator believes that the retailer is unlikely to change prevailing price brackets of 10, 15, 19 and 25¢.

The administrator also reached the conclusion that the prescribed minimum wage will not accelerate mechanization. This was in the face of evidence before him that to produce the same number of pounds of cotton yarn, a modern cotton mill requires only 80% of the spindles and 70% of the employees which would be required in a mill 20 years old. Increases in the wage-scale accelerate modernization and reduce the number of employees required to manufacture the same quantity of cotton into cotton goods. As the cost of modernizing a cotton mill is substantial it would mean that marginal mills would go out of business with resultant substantial curtailment of employment. It is contended that this same principle applies to hosiery mills.

The administrator would not even concede that the 32½¢ rate would interfere materially with low-wage plants attempting to produce 10¢ socks. Mr. Andrews' explanation of the NRA experience was that the price of both cotton and wool increased at the time the wage increase went into effect. He thinks the 32½¢ minimum wage will result in less drastic increases in the low-wage portion of the seamless industry than was caused by the NRA.

The administrator reached the conclusion that the 40¢ minimum wage for the full-fashioned industry would not increase the total payroll by more than 2.1%, which would mean that the average increase of total manufacturing costs would be less than 1%. Even were the manufacturer in a position to pass on that increased cost, it is Mr. Andrews' opinion that it would be absorbed by the wholesaler or the retailer and would not be passed on to

the consumer. Low-wage full-fashioned plants employ 5½% of the persons engaged in that branch of the industry. He calculates that the increase in manufacturing costs in those mills seldom would exceed 3%.

Arguments that the committee's recommendations were not made in accordance with the law led Mr. Andrews to say in his findings that the persons representing each group were chosen with due regard to geographical regions in which the industry operates and that there was strict compliance with the terms of the law. He emphasized that the committee had investigated conditions in an extensive way and had given all facts of the general situation due consideration.

CONDITIONS UNDER WHICH LEARNERS may be employed in the hosiery industry were issued Aug. 24, also to be effective Sept. 18. While the 15-day period for filing objections has not expired at this writing, none has yet been received.

A rate of 22½¢ per hour, with the same figure as the piece-work rate, is prescribed for the primary learning period of 480 hours for all seamless occupations. An hourly rate of 29¢ is fixed for looping and transfer-top knitting for all secondary learning period, with 27½¢ as the piece-work basis. Retraining pay will be 29¢ hourly and 25¢ piece-work. Secondary learning and the retraining rates apply only to looping and knitting (transfer top). No secondary and retraining rates are provided for the other occupations.

All occupations in the full-fashioned industry may pay 25¢ for piece-work and the same rate per hour for the primary learning period. Rates of 30¢ and 35¢ are prescribed for piece basis and hour work for knitting, looping, seaming and topping for the retraining and secondary learning periods.

Merle D. Vincent, who presided at the proceedings, pointed out that while there is unemployment among skilled workers, the migration of the industry from large cities to small towns had created a situation in which the unemployed were not available at all points and that the employment of learners at subminimum wages is necessary at some plants to prevent curtailment of employment opportunities. No blanket exemptions are to be made. Special certificates must be secured at each mill where learners are employed. The number of learners may not exceed 5% of the total number of workers, excluding office and sales personnel. An exception is provided for special cases but is limited to an eight-month period.

Wage-hour official chats with textile executive: Major Arthur L. Fletcher, assistant administrator and chief enforcement officer, wage and hour division, at left, and W. J. Vereen, vice-president, Moultrie (Ga.) Cotton Mills, and president, Southern Garment Manufacturers Association, at meeting of latter organization in Atlanta last month.

DOUBT IS EXPRESSED in some quarters that any immediate increase in the minimum wage for the textile industry will be put into effect beyond 5¢ increase that will take place automatically on Oct. 24. One of the reasons for dissatisfaction with NRA was the fact that its administrator worked with a steam shovel. Administrator Andrews has followed a policy of spading carefully. The hearings demonstrated that there is intense feeling on the subject of minimum wages in both the North and the South. It is known that Mr. Andrews is particularly anxious to do nothing that will aggravate that feeling unduly. Some think that may influence him to let the 30¢ minimum stand for the present on the assumption that a 20% increase is enough to absorb at one time. A 32½¢ minimum would represent a 30% increase.

Whatever is done, no increase will be made effective before Oct. 24, so as to prevent unnecessary accounting and to allow time for the industry to adjust itself to the new rates. It was apparent that the President's comment on the need for a southern differential was deeply resented at the Wages and Hours Division. The feeling is that the President did a highly improper thing in making a public statement of that kind when a decision of a judicial character was pending.

As the opponents of the 32½¢ minimum are capitalizing the President's statement and as much is likely to be heard of that incident in the future, it may be well to review exactly what happened. The President was asked at one of his regular press conferences what he had discussed with the delegation headed by Tyre Taylor. He said he had conferred with the group with regard to the textile wage rate and that he is looking into the group's contention that a minimum wage of 32½¢ an hour might cause some of the small southern mills to close. He said the difference between 30¢ and 32½¢ per hour is only 20¢ a day, but that this might be just the margin that would cause them to close. The President then was asked what about the merits of a differential between the North and the South. The President said there should be a difference when the cost of living justifies it. He expressed the opinion that the idea of a small differential was well carried out by NRA which provided for a 10% reduction in the South. The President called attention to the fact that in that section people do not have to have furnaces and winter overcoats.

Vigorous disapproval of the recommended 32½¢ minimum wage was contained in a formal brief filed by the American Cotton Manufacturers' Association, which contended that the recommendation is not in accord with the law and is not supported by the evidence adduced at the public hearing. It was held, among other things, that the minimum wage was prescribed without due regard to economic and competitive conditions, and that it would result in substantial curtailment of employment, prohibited by the act.

Evidence submitted to the committee was disregarded in many particulars, it was contended. No adequate investigation was made of transportation costs; financial condition of small and marginal mills; respective tax burdens that different mills must carry.

Selling Mill Houses to Employees

Increasing trend in that direction marks new era in industrial relations

BY SPECIAL CORRESPONDENT

A NEW TREND in thought covering southern cotton mill economics as well as southern industrial relations is exemplified by the growing move to sell mill-village houses to mill employees. This trend is definitely part of the new order of things and it promises to bring a new era of better times, financially and psychologically, to those mills and those employees participating in it.

By selling its village to employees a southern mill does two things: It helps itself by resigning from the real estate business into which it was forced many years ago by inadequate housing facilities for the increasing number of workers needed by an expanding industry; and it helps today's textile mill employee assume his rightful sense of responsibility toward his community.

That this move arises from a financial exigency on the part of the industry is not denied. But it is not an emergency move; it is the culmination of events of the last 10 years. It will be the levelling-out process by which the employees may realize on a small week-to-week investment; by which the mill may realize on the eradication of an ever-present loss; and by which both may benefit immeasurably from the new psychological attitudes derived from better employer-employee relations.

No mill has ever made money out of operating a mill village. In the beginning they may have "broken even," but in the last decade of narrowing profit margins the losses entailed in this activity have become distinctly appalling. Rents from the villages have not kept abreast of the increasing taxes and other costs, but have remained on the basis set 30 or 40 years ago. Today village losses threaten the southern industry.

For example, one company with about 500 houses, representing an initial investment of over a million dollars, but not now in the pink of condition, estimates its actual out-of-pocket loss per year to be $150,000. Another company with 600 houses and approximately the same initial investment, but with a systematic repair system which keeps the village in excellent shape, estimates its actual annual loss to be around $200,000. This is not counting depreciation.

As early as 1935, southern mill men realized that the village in which they had taken such paternalistic pride had turned into an incubus which threatened to swallow their stockholders' investments. The Loper report on southern mill village costs, issued that year, confirmed their worst fears. The report showed that the weekly expense, to a mill, of operating a village was:

Per employee housed	$1.946
Per person employed	1.351
Per room	1.045
Per house	4.563

(The above included cost to mills for welfare, medical services, nursing services, repairs, water, light, etc.)

Good economics demanded a change, but at that time the only change contemplated or discussed was a possible raise in rents—but the curtailed operation of the mills, plus national economic conditions, would not justify that.

Early in 1936 an alert rayon cloth manufacturer startled the industry by placing one of his villages on the market, selling the houses to his employees on a weekly payment plan, for he was convinced that such a move would ultimately benefit his people and his mill, and establish a new sort of industrial relations. A year later, the Whitney (S. C.) Mfg. Co. and its employees completed negotiations which made the mill operatives owners of all the houses in its village. This was one of the first complete cotton mill village sales recorded, and certainly the first case in which employees made the first move: informing the management that they would like to own their houses, and finding the management cooperative and willing to make arrangements possible.

Other mills followed suit during 1938, meeting with excellent results in their sales programs. Now, the movement to sell mill villages to employees is South-wide, and is reaching a startling acceleration point. Within recent months the Judson Mills, Greenville, S. C.; Laurens (S. C.) Cotton Mills; Drayton Mills, Spartanburg, S. C.; Groves Thread Co., Gastonia, N. C.; Morrowebb Cotton Mills Co., Dallas, N. C.; Flint Mfg. Co., Gastonia, N. C.; Gainesville (Ga.) Cotton Mills, and others have given their employees the opportunity to buy village houses.

View of typical southern mill village

These are just a few cases. Many other villages are being sold, and many other mills are considering arrangements to sell their villages before the end of the year. Some mills, due to geographical isolation or other individual reasons, will not sell but will have to make adjustments to the new trend in conditions in other ways.

THE PLAN OF SALE is the same in principle throughout the South, the villages being surveyed for replacement costs and the houses being sold on an assessed basis ranging from one-half to two-

thirds replacement value, the assessment depending upon the location of the houses and the general conditions of the property. The down payment ranges around 10% either in a lump sum or scattered over a ten week period, and the amortization payments range between $3.00 and $4.00 per thousand including insurance and interest. Some sales are handled through Building and Loan Companies, and some are being financed by the mill itself.

A good working example of the sales mechanism is that of the Gainesville (Ga.) Cotton Mills which recently disposed of 85 out of 116 of its houses to its employees. Before the houses were put on the market a competent contracting firm was called in to survey the village and make replacement estimates on three types of houses in the village. The figures submitted were used to fix the sale price of each house, the cost to the purchaser being 50% of the replacement figure.

In each case the occupant of the house was given the option to buy the one in which he was living; and a reasonable length of time was allowed for consideration and acceptance and completion of financial arrangements. Those who were unable to make the initial payment of 10% were assisted by the mill, and an extension of time arrangement has been made when and if the mill runs on curtailed schedule which may reduce the purchaser's income. The transactions were completed by the signing and delivery of three papers: (1) a warranty deed signed by officers of the mill, which, with a photostatic map of the property attached, was delivered to the purchaser; (2) a deed to secure the debt, signed by the purchaser and delivered to the mill; (3) an amortization note signed by the purchaser and delivered to the mill.

The incentives that urge a mill employee to buy his home are many. Some are material, some intangible. But one thing is certain, they do want to buy. On the morning when one village was to be placed on the market, 73 out of 150 employees were waiting in line at the office when it opened at 8 A. M. . . . each with his heart set on buying his own home. Before the week was out the entire village had been sold.

It is true that the purchase of a home means a lower net wage return during the period of amortization, but it also means a higher net wage return at the end of ten years when the house is paid for, and when the employee will be older, and—presumably—more in need of cash and security than today. Owning a home is the age-old form of social security attained by independent means. Buying one on the installment plan is the American way to a more independent future. It is not surprising that the southern mill worker jumps at the opportunity offered to buy his own home. It is really the most natural thing in the world, for this country was built and developed through the urge of its people to own property.

Purchase of a home by a mill employee may entail certain sacrifices, but it also has its satisfactory rewards. It automatically removes him from the class of mill worker to the class of property owner. By becoming a property owner he becomes in his own mind and in the minds of others a bonafide citizen of the community. As such he is bound to develop an intense sort of pride in living in that community. Folks who live for years in an ugly rented house will, upon buying it, immediately start beautifying the property. It is always the same, whether the purchaser is a merchant, a banker, or a card-grinder.

A man who is a property owner, no matter how small that property may be, feels stability when he talks about "our town," "our street," "our school." It makes him want to preserve law and order for the protection of his family and his home. It makes him want to see good business continue without interruption (and in a cotton mill village good business means a payroll every week), for a home owner feels he must guard the investment he represents.

Selling mill villages to the employees means industrial relations on a higher plane; it means more stable labor conditions since only people of responsible natures desire to own homes; it means the shedding of the last vestiges of paternalism which was once a necessary, but is now an outmoded pattern of southern mill life. Employee-owned mill villages portend better days in the industry and in the lives of the employees.

Hails National Council

Brookline, Mass.

Editor, TEXTILE WORLD:

The National Council of Textile Industries has been launched.

The TEXTILE WORLD, and yourself personally, are entitled to the thanks of the textile manufacturers for the earnest endeavor which you have given to this matter.

May a large measure of success attend the work of the council, in its efforts to bring about some sort of cooperation, and coordination to the textile industry!

To establish a unity of purpose where individual interest is the ruling motive, is a problem which will not be easy of solution.

When giving consideration to the textile industry from an economic point of view, it is at once evident that the very nature of the business calls for a dual organization.

About forty years ago, the industry began to pay special attention to technological matters. The interest in this has grown from year to year, until today one can say that men are well trained as manufacturers. But manufacturing is but one branch or factor of the textile business. Merchandising is equally important. Yet in a large measure this merchandising factor has been delegated to elements outside of the manufacturer's immediate control.

No one will question the fact that control is lacking, or needed. There may, however, be a question as to just what should be controlled.

All indications point to the market, or the merchandising of the product, as being the weak or disturbing element. And apparently the only corrective in view at the moment for this disturbing element is controlled production. Production and cost are inseparable. If controlling production means reducing production, and thus increasing cost, one may well question the benefit of this procedure to the disturbing element, the market. Creating a seller's market will be but a temporary expedient.

Regulating the price-factor in the market by production control, and relying on statistical information as a basis on which to carry this out, would seem to be going far afield. Such information can readily be a "Two Edged Sword".

If production control is a necessity, then, the merchandising division will be an essential requirement. That division would be in a position to have at least a fair idea of market requirements.

ROBERT BURGESS.

Spinning on Paper Tubes

First installation in this country on trial at Hartsville Cotton Mills

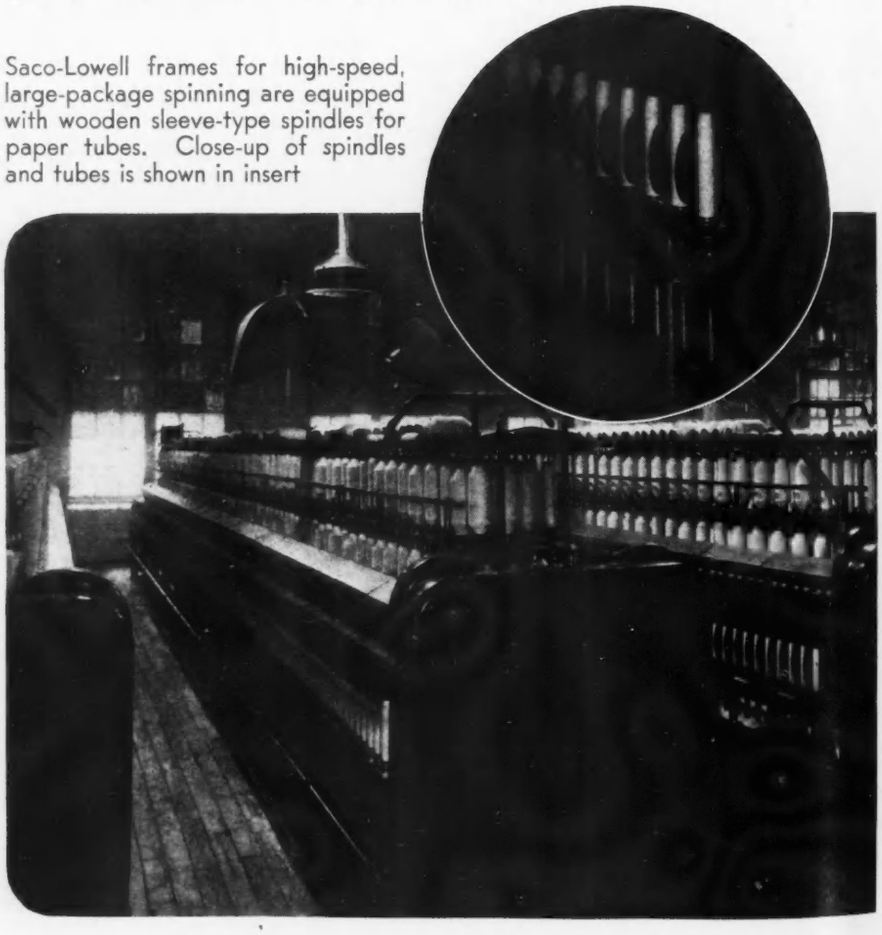
By EARLE MAULDIN
Southern Editor, TEXTILE WORLD

HARTSVILLE, S. C., is not unknown to the agricultural branch of the textile industry. Located there are the celebrated Coker Farms, where the valuable upland long-staple cotton was developed. Hartsville again commands the limelight as a result of an interesting installation of ring-spinning equipment entirely new to this country. The Hartsville Cotton Mills, under the personal management of M. T. Twitty, treasurer, is the first mill in the United States to conduct a sizeable study of the use of paper tubes for warp spinning, although this system has long been in use in Europe and South America, where 2,000,000 spindles have been installed. The possibility of its adaptation to the industry here is now attracting considerable attention, and two other installations have been made—one at Dallas Mfg. Co., Huntsville, Ala.; and the other at Dennison (Texas) Cotton Mill.

Efforts on the part of manufacturers to reduce costs in every possible way have forced the adoption of larger packages in many departments of the mill. In the spinning room it means less time lost in doffing, fewer bobbins to handle, fewer knots, less damage to the yarn, and has also resulted in increased production. Higher speeds have also been advocated and the machinery manufacturers have met the challenge. In the wake of higher spindle speeds, however, has come the problem of vibration, offsetting the advantages these higher speeds seemed to offer. Careful studies of this problem indicate that the stress to which a spindle is subjected by an unbalanced bobbin of yarn increases in direct proportion to the weight and degree of unbalance of the rotating mass and with the square of the speed. For example, if an unbalanced bobbin filled with yarn weighs 5 oz. and the center of gravity or centrifugal axis is 1/32 in. from the axis of rotation, it has been found that the centrifugal force alone is 28 lb. at 10,000 r.p.m. and 34 lb. at 11,000 r.p.m. This eccentricity may result in excessive wear of the bobbin and serious damage to the spindle and the spindle bolster bearing. It also shortens the life of the bolster, due to oil pumping as a result of vibration. An error in the fit of the bobbin may also result in slip which causes damage to both bobbin and spindle.

Prior to 1934 Hartsville Cotton Mills was running 2.25 oz. of 31s warp yarn on conventional bobbins at a front-roll speed of 111 r.p.m. using 1¾-in. rings and 6½-in. traverse. In 1934 the front-roll speed was increased to 132 r.p.m. and a larger package containing 3.06 oz. was adopted, 8-in. traverse being used, and 1¾-in. rings. This change increased the production of the frames by 18.9% and proved entirely satisfactory until it was discovered that there was considerable vibration developing in the bobbins and spindles. Saco-Lowell Shops then began, with the cooperation of the management, the present study in the use of paper tubes in lieu of wood bobbins to eliminate this vibration.

SPINNING FRAMES are Saco-Lowell, 288 spindles each, 3¼-in. gage, 1¾-in. ring. Ten frames have been changed over to date. Eight of the frames are equipped with 8¾-in. slightly tapered tubes carrying, when full, 4,500 yd. of 31s yarn. The last two frames have 9-in. tubes of slightly smaller diameter carrying 5,000 yd. when full. The increased capacity of the longer tube, it will be noted, is due to the smaller diameter, as well as increased length. For trial purposes, tubes of synthetic-resin-treated, and oil-treated paper have been furnished by American Paper Tube Co., Woonsocket, R. I.; Adolff Bobbin Co., Kearny, N. J.; and Sonoco Products Co., Hartsville, S. C. SKF spindle bearings are used throughout.



Saco-Lowell frames for high-speed, large-package spinning are equipped with wooden sleeve-type spindles for paper tubes. Close-up of spindles and tubes is shown in insert

The Saco-Lowell wooden sleeve-type spindle has been adopted. This sleeve is topped by a steel retaining plug, while the lower end butts squarely against the shoulder formed at the top of the whorl. The tube is driven by contact with the steel plug at the top, the tube fitting the taper of the sleeve with clearance varying from 0.008 in. to 0.012 in. at the lower end. Cylinder speed of 1,320 r.p.m., spindle speed of 10,200 r.p.m., and front-roll speed of 138 r.p.m., are now being maintained. Saco-Lowell long draft is used.

The mill is equipped with Barber-Colman automatic spooler and super-speed warper. In handling paper tubes on the spooler it was necessary only to change the skewer in the bobbin pocket to fit the tube.

Tube manufacturers are working with the machinery builders and the mills to develop a tube that will prove economical and give satisfactory service. An inspection of the tubes now in use reveals very little wear or accidental damage; the actual useful life, however, is problematical.

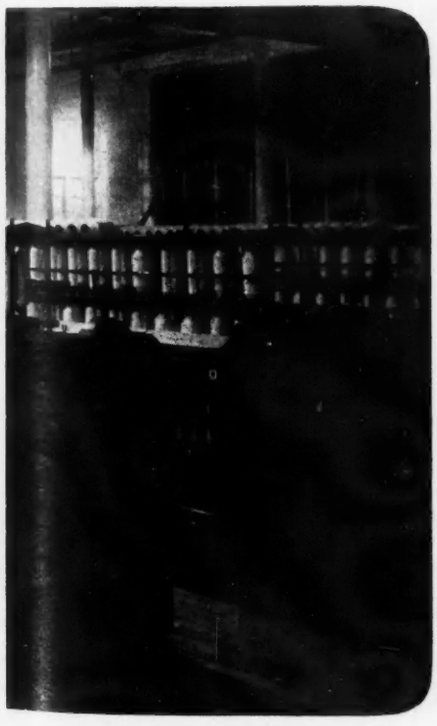
As mentioned in the first paragraph, Hartsville Cotton Mills was the first plant in this country to adopt the paper tubes. This installation was referred to in the March, 1939, issue of TEXTILE WORLD. This mill is spinning 30s to 31½s warp yarn for print cloth. Dallas Mfg. Co. is spinning 18s to 22s warp for sheetings, and Dennison Cotton Mill spins warp yarn from 4½s to 13½s. It is of interest to note that at the Dennison plant 2½-in. rings are used with a 9-in. traverse. The frames, however, are bored for 3-in. rings. With the paper tube spindles and the larger rings, approximately 300% more yarn can be put on the tube than that mill was getting on its old installation. Front-roll speed has been increased from an average of 140 r.p.m. to 200 r.p.m. on 8s yarn, increasing production by 43%.

It is too early, perhaps, to draw definite conclusions from these installations. Adoption of paper tubes in the industry continues and is being watched with absorbing interest. It is possible that out of these installations —in different mills and operating under different local conditions—will emerge a development that will have a lasting effect on cotton spinning.

Spindle Vibration

Other attempts to solve problem

ON NEW INSTALLATIONS of high-speed, large-package spinning machines adoption of sleeve-type spindles for hard impregnated-paper or fiber tubes appears at the moment to afford a possible solution to the problem of excessive spindle vibration. For this reason, the trials now being made at Hartsville Cotton Mills and the other plants mentioned in the preceding article are of intense interest to all cotton spinners. Regardless of the outcome of these trials, there is still the question of what to do on existing installations to prevent excessive wear of blades and tips, and other consequences of vibrating-spindles. This problem also is being attacked, and some progress has been made toward its solution. Several of the developments along this line are discussed briefly below.



Since the trouble encountered has been due usually to use of wooden bobbins which were out of balance or which were too loose on the spindles, efforts have been made to obtain better balanced bobbins by more careful selection of wood, improved manufacturing methods, more rigid examination of bobbins, application of brass bushings at the bearings of the bobbins, and impregnation of the bobbins with a waterproof lacquer or other material to prevent warping of the wood when it is exposed to damp conditions. These efforts have been helpful, but have not entirely eliminated the problem of vibration.

Theoretically it is possible to design a spindle which would be free from vibration when subjected to the high stresses of unbalanced bobbins, regardless of the size of packages. However, such spindles proably would be excessively high in cost and, even if practical, would be of interest only on new installations.

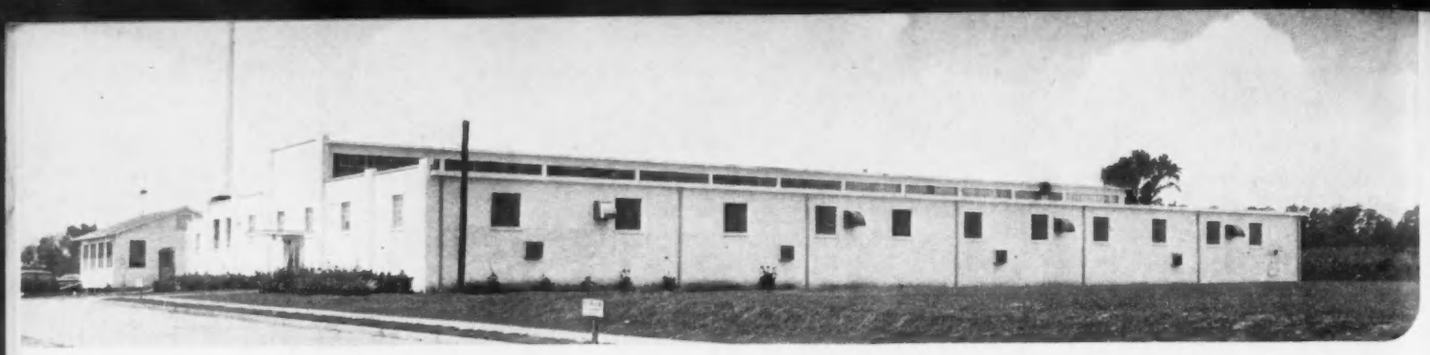
To permit use of paper or fiber bobbins on present installations one manufacturer has developed a wooden adapter which can be slipped over the conventional type of spindle. These adapters were first shown at the Southern Textile Exposition, in April; and it is understood that several mills have made trial installations.

Also announced early in the spring was a cushioned-bearing warp bobbin for use on present installations. This is a regular hardwood bobbin, the upper bearing of which is fitted with a resilient rubber bushing. The effect of the bushing is to assure a close fit at the upper bearing to eliminate roughness or vibration and prevent the slipping of the bobbin on the spindle, this latter function being extremely important.

The cushioned upper bearing consists of a special rubber cylinder with its outside diameter adjusted to the chamber formed at the upper bearing, and with its internal diameter arranged to provide the proper fit at the upper spindle bearing. The lower end of the bearing rests against a dished steel washer, which protects the end of the bushing and serves as a guide for the end of the spindle as the bobbin is pushed on by the doffer. The upper end of the bearing is held in place by a retaining ring, which can be removed with a special tool in the event that a renewal of the bushing becomes necessary.

Several bobbin manufacturers are in a position to apply these bearings to their products and results of actual mill trials of the cushioned-bearing bobbins are expected to be available in the near future.

With the efforts now being made, it appears certain that the one major problem still encountered in high-speed large-package spinning—that of spindle vibration—will soon be solved.



Main building of Grenada Hosiery Mills' new plant; note use of glass block in windows

Single-Unit Installation

At Grenada Knitting Mills is one of several notable features of new plant

UNUSUAL IN MANY WAYS is the new plant of Grenada Knitting Mills, Inc., at Grenada, Miss. In the heart of the South, this plant produces women's full-fashioned silk hosiery retailing at $1.15 and $1.35 a pair. The stockings are of the single-unit type, Grenada being notable in that it is one of the very few mills in the country equipped exclusively with single-unit machines. The plant is of modern design, and the layout is such as to assure the highest efficiency in the various departments.

The main building housing the knitting machines is 106 x 117 ft., with a monitor running down the center. It is of concrete with a special construction of double walls with an air space between for insulation. Windows on the four sides are glass block. A separate building 80 x 80 ft. contains the looping and seaming departments. Knitting machines are lighted by Cooper-Hewitt mercury-vapor lamps; in some of the auxiliary departments the new fluorescent lamps are employed. The plant is completely air-conditioned by Carrier conditioning and refrigeration, supplemented by Bahnson humidifiers.

The knitting equipment consists of twenty 45-gage Schubert & Salzer Type H S U single-unit machines and ten 51-gage machines of the same type. All machines are fitted with the latest attachments, including lace attachments, and are driven by G. E. motors. The installation, which was made by Alfred Hofmann, Inc., West New York, N. J., is at present the largest single unit installation in this country. The plant does not do its own throwing, but devotes its entire effort to manufacturing hosiery in the gray. Stockings are dyed and finished by an associate company, National Silk Hosiery Mills, Inc., Indianapolis, Ind., which also acts as selling agent.

Manufacturing operations are under the direction of J. A. Goodman, formerly chairman of the board of directors of Real Silk Hosiery Mills. Until the plant of the Grenada Hosiery Mills was built there had never been a hosiery mill in Central Mississippi and, hence, no skilled labor was available. In order to train the unskilled employees hired by the company, Mr. Goodman brought with him a large corps of instructors and supervisors who had been in his employ for years and who knew his methods.

Installation of twenty single-unit full-fashioned hosiery machines; photo also shows Cooper Hewitt mercury-vapor lamps and air-conditioning duct

GRENADA SELLS its product under the name of "Airspun" for the 51-gage, and "Round the Clock" for the 45-gage. These brands are featured by such stores as Bonwit-Teller, New York; Marshall Field & Co., Chicago; and at least one leading store in every large city. In its promotional work the company stresses the superiority of the hosiery made on the single-unit machines. One point particularly featured is that the patented knitting process employed produces a fabric in which the usual conspicuous ribs in silk stockings are eliminated. Among the advantages of this Invis-O-Rib fabric cited in advertisements of Airspun and Round the Clock hosiery is that it results in stockings which look sheerer and last longer because they are smoother and are less likely to snag. It is emphasized also that due to the sheerness of the fabric, women can wear stockings one thread heavier than previously, thus securing greater strength and saving money without sacrificing appearance. Another advantage featured is the impossibility of a shaded ring at the ankle.

Although the plant has been in operation for less than a year, the combination of modern equipment, progressive management, high quality of product and vigorous merchandising has already given the company an enviable reputation in the trade.

Paris Plays Textures for Fall

Wide variety of colors, fabrics and silhouettes offered by "Haute Couture"

By BETTY HIRSCHBERG
Paris Correspondent, TEXTILE WORLD

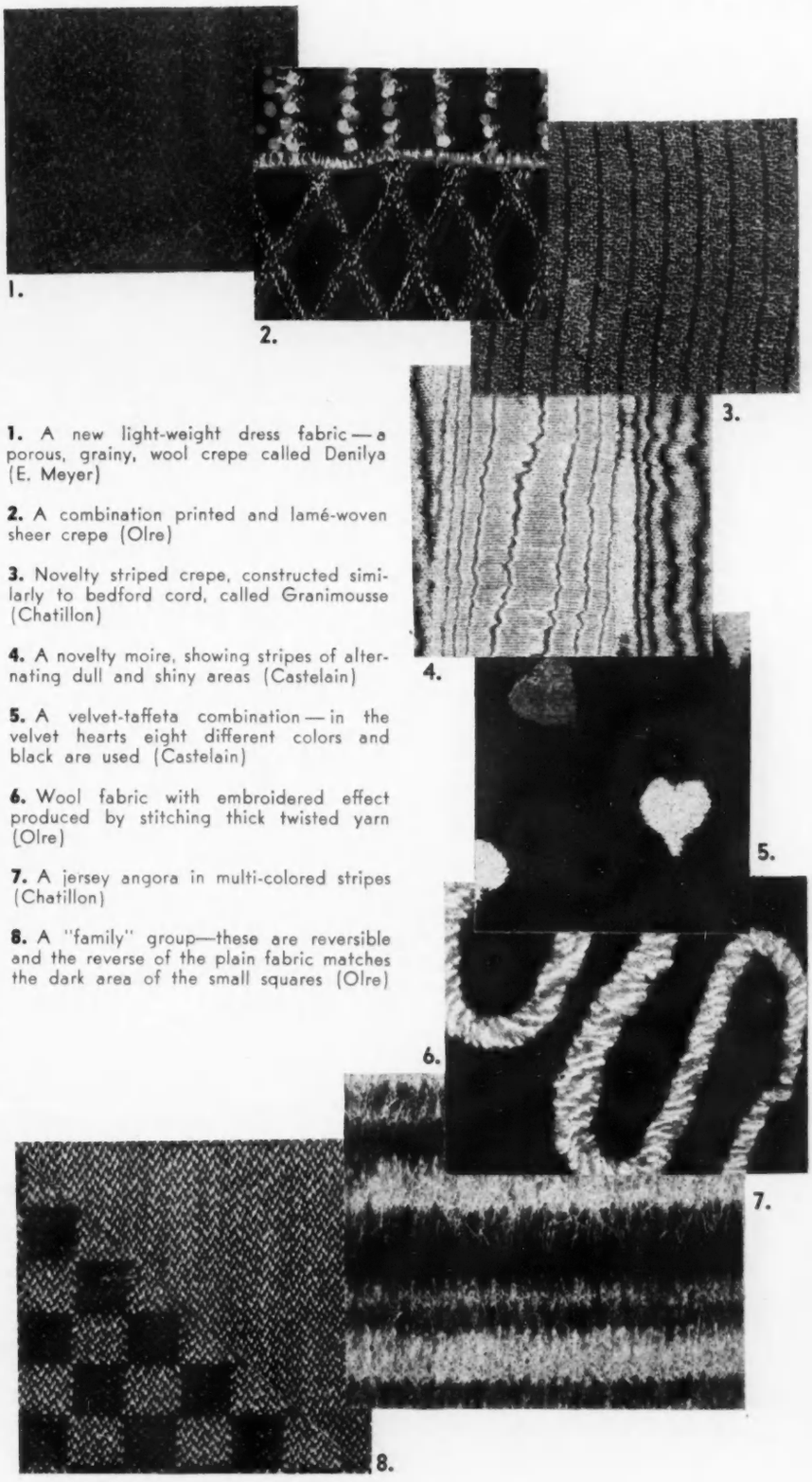
FABRICS containing wool appear to have reached new levels of high importance in the eyes of French designers. The fall and winter ranges opened around Aug. 1 disclose distinctive wool creations in the collections of most of the important fabric houses. These fabrics range from heavy shaggy materials for coatings to light, sheer goods for dresses and gowns. The use of wool in women's formal wear, while not new this season, is receiving a distinctly forward push.

In the field of silk and rayon, the basic taffeta and satin weaves are repeated in numerous variations, while velvets and brocaded silks are shown on a scale which sets richness, splendor and luxury as keynote. There is considerable use of lace in the new garment models, not only in formal gowns but in daytime dresses as well.

There are full ranges of colors in the showings and it is difficult to distinguish any new trends in the color field. One house stresses dahlia colors; another bases its colors on exotic fruits and wines; another on sky and sea. Patou as usual stresses two colors, which are for this opening "Winter Blue" and "White Glacier." The blue is a navy with a shade of green. Several houses offer dark shades to replace black.

In general feeling, the styling suggests inspiration from the period of 1880 to 1890 and many of the materials are described as "pompous and splendid." For certain effects in garment designing stiff materials are offered, and there is considerable use of accessories such as fringe, cord, lace trimmings, buttons, etc. There are many silhouettes ranging from the "cigarette" to the "hour-glass." As one commentator aptly said in referring to the hour-glass, "It is difficult to tell whether the time indicated is 1890 or 1940."

There is continued use of lamé in a wide variety of fabrics, and some interesting effects are seen in use of lamé in colors. In velours and velvets interesting effects are produced by handling the pile to produce small patterns. Again some houses offer fabrics in families, each fancy number having a plain fabric woven in the ground material.



1. A new light-weight dress fabric — a porous, grainy, wool crepe called Denilya (E. Meyer)

2. A combination printed and lamé-woven sheer crepe (Olre)

3. Novelty striped crepe, constructed similarly to bedford cord, called Granimousse (Chatillon)

4. A novelty moire, showing stripes of alternating dull and shiny areas (Castelain)

5. A velvet-taffeta combination — in the velvet hearts eight different colors and black are used (Castelain)

6. Wool fabric with embroidered effect produced by stitching thick twisted yarn (Olre)

7. A jersey angora in multi-colored stripes (Chatillon)

8. A "family" group—these are reversible and the reverse of the plain fabric matches the dark area of the small squares (Olre)

Laboratory Detergency Test

Simple, homemade apparatus discloses efficiency of various cleaning agents

By FRANK ALLEN LUCY, Ph.D.
Onyx Oil & Chemical Co.

DETERGENTS are sometimes tested with a view to studying the nature of the process of soil removal, but usually for the control of production and for the development of more efficient agents. The extraordinary activity in the detergent field during the last ten years or so has necessitated the development of rapid test methods, since thousands of compounds are known and many times this number may be expected to have more or less value. Of course, no single small-scale test can give a really accurate idea of the suitability of a detergent for every application. The efficiency of a wool-scouring composition, for instance, is undoubtedly best judged in a full-scale mill operation. On the other hand, runs of this nature require much time and material, and anyone with many detergents to evaluate needs rapid methods, at least for preliminary work. This paper describes procedures and apparatus found suitable for such tests in the manufacturer's laboratory. Similar technique could doubtless be used in textile mills for controlling operations and testing new detergents offered to the trade.

For basic studies of the way detergents work, many special tests have been devised. These measure, for instance, the height of foam produced by a certain agitation of the bath, the absorption of normally insoluble dyes, suspension of powders, protective colloid action, efficiency of wetting, reduction of the surface tension, and so on. No one of these tests—indeed, no combination of them—gives so accurate an idea of actual textile cleaning efficiency as may be gained by washing a small soiled piece of cloth and determining the apparent removal of the dirt.

METHOD EMPLOYED. Each writer on this subject reports a method differing in details from every other method. In this laboratory, the routine technique is to soil a long continuous strip of wool serge in a two-roll quetsch with a full dip. Two liters of naphtha are used, containing 10 grams of Norit A and 60 grams each of Standard No. 5 White Oil and Crisco. The bath is pre-mixed by tumbling for 10 min. in a small drum, then is put into the quetsch pan. While the bath is steadily agitated, the strip is given several passes during 20 min., so as to build up a uniform soil of the required density. The strip is then cut, dried flat on a non-absorbent surface, and cut further into 4-in. squares for individual tests. The light reflectance is measured photoelectrically, as detailed below. Washing is done in a Launderometer at 50° C. for 30 min., using 0.10% of the detergent under test and 0.25% soda ash, with 200 c.c. of water and one test piece in a pint jar. Ten small weighted rubber balls are added to increase the mechanical agitation. After washing, each piece is rinsed twice by hand in about 400 c.c. of warm water, dried in a conditioning oven at 100° C., and the light reflectance is measured again. From the lightening of the shade, the cleaning efficiency is determined.

As an example, assume that before washing the soiled cloth reflects 20% as much light as the clean; after washing, 60% as much. Here the improvement in reflectance—the lightening of shade—is 40%, and the cleaning is 40/80 or 50%, since the cloth has been lightened half as much as is possible; i.e., 40 units in a range of 80. Expressed as a formula, $C = 100\ (R - R_s) \div (R_o - R_s)$, where C is the per cent cleaning, R the reflectance after washing, R_s the reflectance after soiling, and R_o the reflectance of clean cloth.

★ ★ ★

In this article Dr. Lucy describes the procedure employed in the Onyx Laboratories for making detergency tests, and suggests its uses in textile mills for controlling operations and evaluating new detergents. A subsequent article will discuss the results obtained from such tests and conclusions to which they lead.

Modifications of this routine soiling and washing procedure are often made for special purposes. Similar methods have been amply described many times before, and further detail is unnecessary here. The measuring device used in this laboratory is novel, however, and should be explained more fully.

Photoelectric reflectometers of the author's design have been used here since 1934. The present instrument has served for half this period without difficulty. While far from being an ultimate model, it is compact and convenient.

THE APPARATUS. Current from a 6-volt transformer operates a 32-cp. auto head-lamp. Part of the light from this falls on the sample, which is held vertically across an aperture at the end of the case by a hinged door. Another part of the light falls on a concave mirror provided with two shutters—one sliding vertically; the other, horizontally. The lamp stands in a hole in a vertical baffle, which divides the case into two parts so that light can pass from one compartment to the other only through the lamp. Some of the light scattered from the sample is intercepted by a photovoltaic cell, and all of the light reflected from the exposed portion of the mirror falls on a second photocell. To avoid stray light effects, the remainder of the instrument is painted dull black and covered with black velvet, with the lay of the pile arranged to give minimum gloss.

The voltages of the cells are opposed through a microammeter, the needle indicating balance by staying at the null point instead of swinging one way or the other when the light is switched on. Any variations in the lamp intensity affect both cells proportionately. The microammeter is used solely as a null indicator, and requires no calibration. Errors due to temperature coefficients and fatigue of the cells, as well as ageing effects, tend to cancel, especially if the cells are selected so as to match closely at the start. Matched Weston Photronic cells are used, and calibration with standards shows only minor deviations of the observed reflectances from actual.

To set the instrument for a given

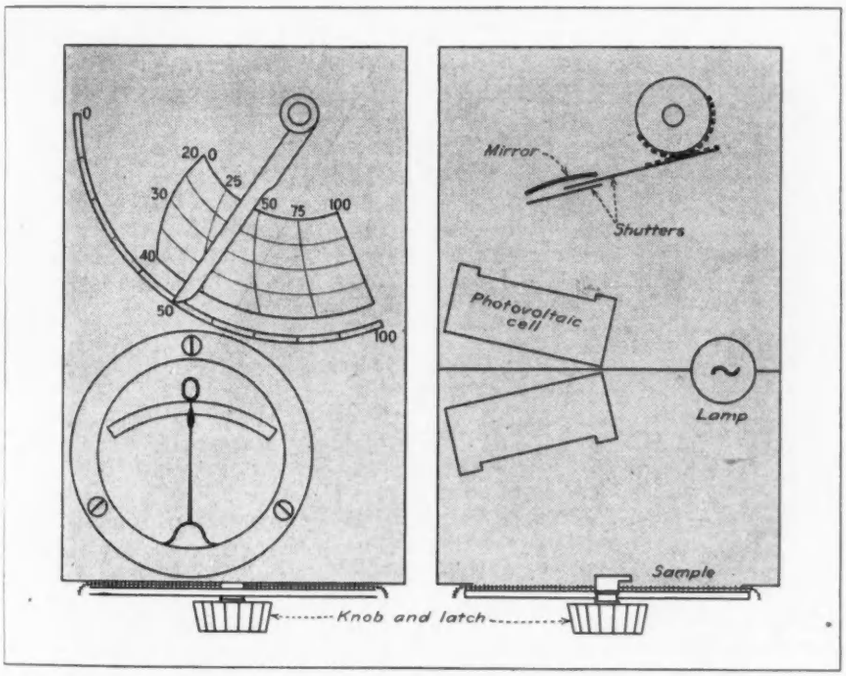
type of cloth, the operator puts a clean piece in the sample position, opens fully the horizontally moving shutter, switches on the lamp, and brings the meter to zero by sliding the vertically moving shutter. Thus there is exposed enough of the mirror to balance the perfectly clean cloth sample. The lamp is then switched off and the clean cloth is removed. To measure soiled or washed cloth in terms of this standard, the operator puts the sample in place, switches on the lamp, and reduces the exposed area of the mirror with the horizontally moving shutter until the meter returns to zero. There is a pointer geared to this shutter, and its position on a scale tells how much of the mirror is in use. This is proportional to the amount of light necessary to balance the light reflected from the cloth sample, and measures the reflectance of the latter in terms of clean cloth, as the reflectance of soiled or washed cloth is reduced by the dirt on it, and the horizontal shutter reduces the area of exposed mirror correspondingly.

A reflectance scale is engraved on the top of the case. To make computations unnecessary, a number of scales of graded length are also engraved there. These are all divided uniformly from 0 to 100, and have the upper ends in line, but the lower ends fall at various reflectance values. It is only necessary to record which of these scales has its zero corresponding to the reflectance of the soiled sample, and then reading the washed sample on the same scale gives per cent cleaning directly. An entire set of determinations made with this apparatus takes only a few seconds.

With this definition of cleaning efficiency, the degree of soiling is not critical. Most agents give approximately unchanged per cent cleaning for variations in initial reflectance between 15 and 30%.

Nevertheless, it is very desirable to have uniformly soiled material for control work, and some study was made of factors affecting the depth of soil and the ease of its removal.

Cleaning the serge before soiling has little effect. The finish on the wool is lifted in any case by the naphtha of the soiling bath. Within wide limits, the initial moisture content (regain) of the entered cloth is also without effect. Other things equal, greater time of soiling gives increased depth of soil, and, rather surprisingly, increasing the temperature gives a soil of less. Reducing the amount of oil in the mixture much below that specified gives a soil less readily removed, as does reducing the size of the carbon particles. A very large increase in the amount of oil used would probably also militate against ready removal, but this has not been observed over a range of 5 to 15% of the soiling bath. The effect of altering the amount of carbon varies with the detergent, as will be detailed in the next section.



Reflectometer employed in making detergency tests. Left, top view of reflectometer showing pointer, scales, and galvanometer; most of the scales have been omitted for greater clarity. Right, top view with cover removed, showing mirror, shutters, rack and gear, photocells, baffle, lamp, sample, and door

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SOURCES OF ADDITIONAL DATA

A reader desiring fuller discussion of the methods and principles touched on in this article can find many references to earlier work in *Chemical Abstracts* and the *Industrial Arts Index*. Some of particular interest, containing further references in turn, may be given here.

Elledge and Isherwood, *Ind. Eng. Chem. 8*, 793 (1916), and
McBain, Harborne, and King, *J. Soc. Chem. Ind. 42*, 373T (1923)
discuss the suspending and lubricating action of detergents. The latter authors propose as the carbon number of a detergent the weight of carbon black carried through a filter paper in grams per liter of solution. To get reproducible results, they specify a set of standard materials and conditions which, however, do not correspond well to practice.

Zsigmondy, *Kolloidchemie*, defines the gold protection number of a detergent as the weight of it in mg. dissolved in a c.c. of water which, when added to 10 c.c. of a particular gold sol, is just insufficient to prevent shade change on the addition of a c.c. of 10% sodium chloride solution. Zsigmondy emphasizes, however, that this does not give a general measure of protective action, since colloids vary widely in protectibility.

Ostwald, *Kleines Praktikum der Kolloidchemie*, p. 152 (1930), defines a similar quantity, using a salt-sensitive dye solution in place of the gold sol. See further *Melliand Textilberichte 19*, 809 (1938).

McBain and Woo, *J. Am. Chem. Soc. 60*, 223 (1938), *J. Phys. Chem. 42*, 1099 (1938), measure a dye number for various detergents, expressing the amount of a water-insoluble dye which a water solution of the detergent can extract from a toluene solution of the dye. This, as the authors point out, is one factor in detergency, being related to the ability of the detergent to take up and maintain insoluble matter in permanent suspension. Again, the conditions of the experiment differ widely from practical conditions.

Clayton, *Symposium on Wetting and Detergency*, pp. 53, 137, 185, etc., contains several articles discussing detergent action, and especially the relation of wetting efficiency to the latter.

Walther, *Zeit. Angew. Chemie 41*, 1083 (1928), covers the relation of surface-tension lowering to detergency. However, this relation actually has less significance than many writers attach to it. For instance, one much-advertised commercial detergent, consisting essentially of sodium benzene sulphonate alkyated with kerosene, gives a solution having practically zero interfacial tension against kerosene or mineral oil, but is, in spite of this fact, not an efficient cleanser of cloth soiled with mineral oil.

Morgan, *Oil and Soap 10*, 223 (1933), discusses the test methods from which those in the present article were largely derived, and in *Can. J. Research 8*, 583 (1933) also gives references allowing much of the earlier work to be traced.

Preventing Defective Woolen Yarn

Requires careful selection of stock, blending, and setting of cards

By G. MARSHALL

IN THE PRODUCTION of woolen yarns which are completely up to strength, correct blending is of considerable importance. The length, fineness and freedom from defects of the stock to be used must be carefully considered, according to the type of yarn to be produced. Mixtures of stock requiring widely different treatment in carding should be avoided; and in the actual making of the blend the material should not be subjected to too drastic treatment. When production of yarns which are below strength can be traced to the carding process, usually one of two things is the cause of the weakness: either fiber breakage or insufficient opening of the material.

Fiber breakage in carding may be due to several different causes. The principal ones are too high a speed of the breast part of the card or incorrect relationship of speed between the cylinder and workers, and/or cylinder and doffers.

Too often the workers of a card are run very slowly because it is believed that maximum working power is obtained when there is the greatest possible difference in surface speed between the rollers. Actually, this is true only so long as there is no overloading of parts. Further, with such speeds, the action is very drastic and may result in considerable fiber breakage.

With a 50-in. diam. cylinder and a speed of 100 r.p.m., the surface speed is 1,309 ft. per min., while the surface speed of an 8-in. worker running at 1 r.p.m. is 2.1 ft. per min. If this is assumed to give 100% working power, working power for other speeds can easily be calculated; with the following results: (working power in %; worker speed in r.p.m.) 99.8, 2; 99.5, 4; 98.8, 8; 97.5, 16; 94.9, 32; 89.8, 64.

Thus it can be seen that with very considerable increase in speed of the workers, there is but little loss in working power. Hence, from that point of view alone, there is little objection to increasing worker speed. Each increase in speed, however, results in less drastic action between the cylinder and workers, and so minimizes risk of breakage. Also, it results in the presentation of many more clean teeth to the cylinder, and, therefore, may also result in better carding.

Similar reasoning can also be applied to the doffers, particularly as these are primarily conveyors and not working rollers, their function being to clear the cylinders completely. If the cylinders are not completely cleared, rolling and nepping are likely to occur; this condition again may cause loss of strength.

Twits in a yarn or roving also reduce the strength considerably, as the yarn can be only as strong as its thinnest points. Twits may be caused by any one of the following reasons, or a combination of a number of them:

Weak yarns due to carding result either from fiber breakage or insufficient opening

1. Trying to card and spin stock to finer counts than those to which it will go readily.

2. Applying too much draft to a delicate fiber structure, such as the web of stock between doffers and strippers, strippers and tapes or dividing rolls, tapes and rub aprons, or rub aprons and surface drums.

3. Permitting imperfections in the clothing of the last cylinder of the card or of the condenser doffer, or incorrect setting of the doffer or fancy.

4. Trying to make fine counts of roving on a tape or ring too wide to fill evenly with stock.

5. Allowing incorrect relationship between draft and twist on the mule.

THE FIRST FAULT, that of trying to make stock spin to too fine counts, is due to mistakes in blending, and the only cures are either to improve the blend or to spin it to suitable counts. A yarn of a certain count must have a certain minimum of fibers in a cross-section, and the arrangement of the fibers in woolen yarns necessitates a larger number than in the case of worsted yarns, even though the two yarns may be made from stocks of similar quality.

On any type of condenser, care must be taken to prevent over-drafting of the stock. When a tape condenser is in use, the points at which this is likely to happen are readily visible, so that there is no excuse for faults of this class. But on some ring condensers it is much more difficult to see the stock. On the single-ring doffer, trouble may be experienced because of the tendency of the rovings to rub together, and over-drafting may take place in an endeavor to correct this fault. To minimize the risk of this, make sure the divider is set well up to the top rub-apron and, if necessary, have the space between the rings widened. In all cases, the correct relationship of speeds between doffers and strippers, strippers and dividers, dividers and rub aprons, and rub aprons and surface drums, must be maintained.

Of course it is imperative to keep the last cylinder of the card and the condenser doffer or doffers in good condition. The teeth on both must be perfectly smooth and have good points. Use of a burnishing roll on the doffer will be found to be of help in keeping it in good condition. It is also of importance to have the fancy and doffer operating correctly for, owing to the amount of stock carried on the last cylinder, perfect clearance is difficult to obtain, yet it is most important.

Fine counts cannot be produced successfully on a wide ring or tape, and faults which are caused by this may be wrongly attributed to too coarse a blend. The ring or tape must be of such a width that it can be filled easily with a solid web of fibers.

Abstract of a speech made before the Dewsbury Textile Society, England.

FIFTEENTH ANNUAL RAYON YEAR BOOK NUMBER

FEATURING RAYON AND OTHER SYNTHETIC FIBERS

Synthetics Enter Their Third Stage

By DOUGLAS G. WOOLF

SYNTHETICS, THE BOY WONDER of the textile industry, now enter the third stage of their existence. The first stage was infancy, when the brain-child of Count de Chardonnet—"artificial silk"—was employed at child-labor in the production of soluble (sic) neckties and sweaters. The second stage—possibly adolescence—was the spectacular growth from 1920 to 1938 when, with a new name, rayon, synthetics invaded practically all branches of textiles—but still as a material with a cellulose base. The third stage—do we dare call it maturity?—has come within the last year when fibers with a non-cellulose base took the lime-light.

In fact, the third stage started before 1938—with the casein fiber, and with experiments with albumen and other forms of nature's products. But the real story began when chemists by-passed all such materials and produced fibers by completely synthetic methods. The results of that new research have just become known in the last year.

And so this year's Annual Rayon Number of TEXTILE WORLD is the most important of any since those days in the early 1920's when rayon (then "artificial silk") was just becoming a textile news-item.

We wonder if textile manufacturers realize what is going on. This is no mild development; this has the makings of an industrial revolution. . . . And we are writing these words carefully, thoughtfully, without trying to be spectacular.

The textile world has heard a lot about Nylon this last year, and—more recently—about Vinyon, and other fibers which have threatened the position of silk in its last stronghold: full-fashioned hosiery. But is that their main significance? For the moment, yes: but for the future, no.

Their real significance lies in the fact that chemistry may now produce fibers out of almost anything: air, water, coal, gas, or what have you. And a corollary thought is that there are innumerable other sources: casein, as we have mentioned; soy-beans; corn; glass, et al. The main conclusion to be reached is this: Cellulose is no longer the sole source of synthetic fibers. In fact, there is a possibility that eventually it may be not the most important source.

Think what that means to cotton agriculture! And to the synthetic industry, as we know it today!

We shall leave the details of this revolution to the Rayon and Other Synthetic Fibers Section which follows. But just now we want to recapitulate what we have warned in these columns for 15 years or more.

We have stated, first, that the textile industry may eventually have synthetic products as its entire source of raw materials and we have been ridiculed by those who "wanted to be left alone" and who saw in rayon merely a bubble which eventually would have to burst.

That is plain wishful thinking. The reason we made the prediction was that we knew something about the inexorable march of synthetic materials against their natural prototypes. The best example is one we have used before: dyes. When we first entered the textile industry, the "bleachery" with which we were connected had literally acres of its plant devoted to dyeing of logwood blacks. Today that plant has nothing but rayon-finishing machinery—and uses nothing but synthetic dyes.

The man who, 50 years ago, might have dared to predict that eventually synthetic dyes would replace natural dyes, would have been branded as crazy. And yet that has happened. Why? Because synthetic dyes are not subject to the whims of nature; they can be produced under the control of man, with almost 100% uniformity. More important still, they can be modified at the will of the chemist to meet almost any need of the industry which uses it.

And that is why, eventually, synthetic fibers will completely replace natural fibers.

We hate to write those words because we have so many friends tied up with the cotton agriculture of the South; and so many other friends who still believe that the "old" textile industry will find itself again.

All we hope is that those textile manufacturers who are still mentally alive—and that means the majority, we believe—will take stock of their position and adjust themselves to a fast-changing textile world. If they do, they can profit by a participation in the new order. If they do not, others will take their places.

AND THE SAME EPIDEMIC of change which is affecting the materials of the industry may manifest itself in its equipment. It is not impossible—in fact, it is very possible—that completely synthetic fabrics will eventually be produced—fabrics which by-pass the preparatory equipment, the spinning frame, and the loom. The textile machinery manufacturer who senses that possibility is the one who will live. The one who ignores that possibility may pass out.

These things are not going to happen over-night. No one need sell his mill, or his machinery plant, tomorrow morning. BUT every one who is connected in any way with the textile industry must realize that the era of change of the last 15 years is merely the forerunner of far more drastic changes in the next 15 years. We are not guessing about this; we know it.

And so we come back to our old question: Can a Textile Man Make Money? The answer is: Yes: *If* he will keep his mind wide open and adjust himself to changes *before* they get out of hand. Believe it or not, that is the only sound answer to our own question!

Putting the Spotlight on The New Synthetic Fibers

THE YEAR IS 1912. Just arrived from a reader of TEXTILE WORLD is a sample of a new fiber together with a letter stating: "We would like to know what the inclosed fiber is. We want to use it in place of silk, but we find it has not the same nature. Where does this fiber originate?" The editor identified the fiber as artificial silk invented by Chardonnet; told the inquirer that some forms are said to melt under certain conditions of moisture very much like a thread of candy; advised him that it might serve for purposes where the material is not subjected to severe conditions of wear and not likely to come in contact with moisture.

THE YEAR IS 1939. On our desk are samples of Nylon, Vinyon, Fiberglas, Lanital, Cisalfa, Tenasco, Cordura, Celafil, Teca, and a host of other new and improved synthetic yarns and fibers. There are fibers made from coal, air, and water; fibers made from synthetic resins, from skimmed milk, from soy beans. And there are fibers made from the same cellulose base used by Chardonnet; but they do not melt like candy; they can be subjected to severe conditions of wear; they are little affected by moisture.

These truly synthetic fibers introduced during the last year or two, the vastly improved continuous filament rayons, and the new types of staple fibers will undoubtedly have as far-reaching an effect on the textile industry as did the development of rayon itself. It appears certain that some of the new fibers will find extensive use in the manufacture of apparel, household and industrial fabrics. It is probable that some of the new fibers will never emerge from the laboratory.

Below we are summarizing some of the more pertinent information on the production, properties, and use of the newer synthetic fibers which are now available in this country and which are expected to be available in the near future. There are a number of other fibers which show promise, but which have not yet reached a stage of development which permits critical discussion. These include such fibers as Permalon, a vinylidene chloride derivative, and Ethylfil, believed to be an ethyl cellulose derivative.

In presenting the following data we wish to express our gratitude to the various producers of synthetic fibers who supplied samples of their products and checked the factual information. In addition, we wish to call special attention to the photomicrographs which accompany the text, all of which were made by the Wm. M. Grosvenor Laboratories, Inc., 50 East 41st St., New York, for use in this section. Not only do they reveal some of the important characteristics of the various fibers; but—in conjunction with simple physical and chemical tests—will assist in the identification of fibers of unknown origin.

Nylon

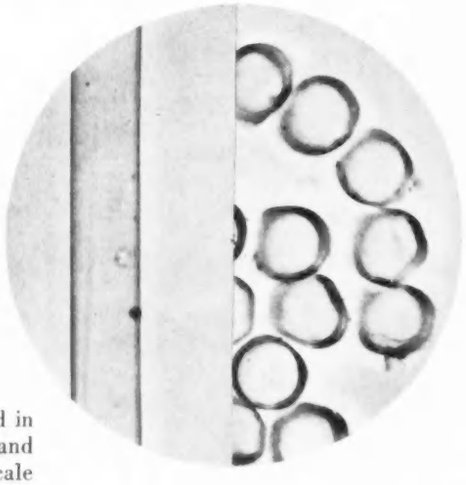


Fig. 1. Nylon (500x)—left, longitudinal; right, cross-section.

NYLON YARN is now being produced in a limited quantity in a pilot plant and an $8,500,000 plant for its large-scale production is scheduled for completion early next year. The high strength, good elasticity, and other properties of Nylon have made this new synthetic fiber of great interest to textile men. Nylon is described chemically as a polyamide produced by the reaction between a primary or a secondary diamine and either a dicarboxylic acid or an amide-forming derivative of a dibasic carbolic acid. Pentamethylenediamine is typical of the former type of chemical, and sebacic acid is typical of the latter type.

The polyamides can be spun into continuous filaments directly from the reaction vessel into the atmosphere; they can be dissolved in a suitable solvent and then extruded into a liquid which dissolves the solvent but not the polyamide; or the solution can be extruded into a heated chamber where the solvent evaporates. In its chemical composition, Nylon resembles silk more closely than it does any of the other natural fibers. From the photomicrographs (Fig. 1) showing longitudinal and cross-sectional views of Nylon it will be noted that the filaments are smooth and almost round.

One of the important characteristics of Nylon is the fact that it can be produced in filaments of exceedingly fine size (0.2 den., or less). Another of the outstanding physical properties of Nylon is its high tensile strength, especially when wet. The tensile strength is not affected by ironing or drying up to temperatures of 400° F. At temperatures of about 470° F. the fibers melt.

Dry and wet tensile strengths as given by the manufacturer are as follows:

Tensile strength (dry)
5 grams per denier
Tensile strength (wet)
4.4 grams per denier

Elongation can be varied widely by modifying the manufacturing process. A typical yarn has a dry elongation of about 20%, and a wet elongation of about 30%.

Up to 8% stretch Nylon has an elastic recovery of 100%; with 16% stretch elastic recovery is 91%; with 25% stretch at 85% relative humidity, elastic recovery of polyamide yarn is 77%, as compared with 65% for silk yarn.

Nylon is less hygroscopic than most natural or synthetic fibers, absorbing only 4.55% moisture at 70% relative humidity.

Polyamide fibers have a high resistance to many chemicals, including acetic acid, hydrogen peroxide, and sodium hypochlorite. On the other hand, boiling in 5% hydrochloric acid makes the fibers brittle and finally destroys them. Exposure to steam at 390° F. for 3 hr. has no effect on the tensile strength. However, at 435° F. there is some loss in tensile strength; and at 465° F. there is a large loss in tensile strength.

The fibers can be dissolved in phenol, m-cresol, xylenol, and formic acid. At high temperatures a few other chemicals act as solvents.

Moistening of Nylon yarns or fabrics with a solution of sodium sulphite followed by a short steaming enhances the elastic recovery, crimp, and crease retention. Once a Nylon fabric has become set, a condition of heat and moisture more severe than the condition of set is necessary in order to effect a resetting in another shape. Therefore, Nylon stockings are given a preliminary set known as "pre-boarding" in the desired shape immediately after knitting. The stockings are then immune to any wrinkle set during scouring, dyeing, and rinsing. Since pre-boarding is the first hot, wet treatment in the sequence of manufacture, it determines in large degree the permanent shape and smoothness of the stocking. Because the effects of setting are practically permanent, the stockings may be laundered and dried repeatedly without material change in their original shape and smooth appearance.

Nylon can be dyed with many of the dyes ordinarily used for silk and wool, and particularly good results have been obtained with dyes employed for acetate rayon. Experiments to date indicate that a selected range of neutral-dyeing acid colors are the most satisfactory from the viewpoint of general fastness and ease of application.

In general, Nylon can be handled on conventional types of textile machinery. Minor difficulties have been encountered in winding, warping, and sizing; but, considering the short time that Nylon has been available, comparatively little trouble has been experienced.

For several months Nylon sewing thread has been marketed commercially. In addition, hosiery, knitted underwear, and woven fabrics have been produced experimentally. The properties of the new fiber indicate also that it has a number of potential uses in various types of industrial fabrics.

Vinyon

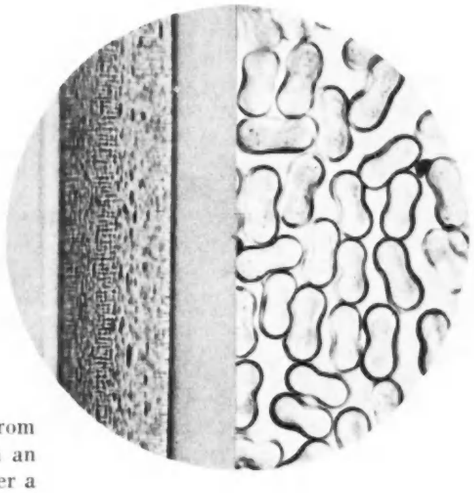


Fig. 2. Vinyon—left, longitudinal (1,000x); right, cross-section (500x)

VINYON, a synthetic fiber derived from a vinyl resin, has been produced on an experimental scale for somewhat over a year, and announcement of its commercial production and plans for marketing the product is believed to be imminent. Chemically, vinyl resins are polymerization products. Poly-vinyl chloride, for example, is produced by polymerizing vinyl chloride in the presence of a catalyst, and poly-vinyl acetate is produced by the polymerization of vinyl acetate, which is derived from a hydro-carbon gas. Various co-polymers of vinyl chloride and vinyl acetate can be prepared, those having about 85% to 90% by weight of vinyl chloride being especially suitable for making synthetic fibers.

The vinyl resin in the form of a dry powder is dispersed in acetone to form a dope containing 23% by weight of resin. The dispersion is then filtered through a filter press, and deaerated by allowing it to stand for 48 hr. Extrusion of the filaments is carried out by a dry spinning process, similar to that employed for spinning acetate rayon.

After the filaments have been allowed to stand for at least 12 hr. on the take-up bobbin, they are wet twisted on a standard duplex ring twister, being given 6 turns per inch. The twisted yarn is then stretched by means of a suitable device to about 140% of its original length and wound on spools. The stretching operation is said to be a vital feature in the production of the yarn, increasing the tensile strength and giving the fibers true elasticity. Next the yarn is set by immersing it for 2 to 3 hr. in water at 150° F. Finally the yarn is wound on cones ready for use.

Delustering of the yarn can be accomplished by incorporating pigments of small particle size in the resin dispersion or, preferably, by treatment of the filaments with water at temperatures above their point of formation. This hot water treatment causes the fibers, when viewed under the microscope, to have a slightly roughened or scaly exterior; as shown in the longitudinal photomicrograph of Vinyon (Fig. 2); note also the characteristic shape of the cross-sections.

Properties of Vinyon of particular interest to textile men include high elasticity and elongation at break; high

tensile strength as compared to rayon; resistance to water, acids, and alkalis; and good dielectric characteristics. The strength and elongation of a yarn stretched after spinning and twisting to 180% of its original length and then set are given below; elasticity is about the same as that of real silk.

Tensile strength (dry) 3.4. grams per denier
Elongation 11%

The yarn is water resistant and waterproof, but surface wetting can be readily accomplished through the use of wetting agents. The yarn is thermoplastic; its fusion temperature is somewhat lower than that of fibers formed of cellulose acetate, but the yarn will not support combustion. It is resilient and has natural crease resistance to a high degree. It is unaffected by alkalis and mineral acids of both high and low concentrations. Vinyon can be dissolved by the lower aliphatic ketones and certain halogenated hydrocarbons, and it tends to swell when in contact with diethyl ether and the lower aromatic hydrocarbons; but is unaffected by alcohols, gasoline, and other aliphatic hydrocarbons, as well as most other types of solvents. It will not support bacterial or fungus growth and is unaffected and immune to attack by bacteria and fungi. It is non-conducting to electrical charges and is an excellent insulator.

The yarn can be produced in various filament sizes, and it has been determined that the filament denier which most conveniently lends itself to the processes of textile manufacture is around 1.0 to 1.5. The filaments, either in the stretched or unstretched condition, can be cut into staple fiber of any desired length.

Vinyon can be dyed by incorporating dyes in the resin dispersion prior to filament extrusion, or it can be dyed, after its formation, from baths containing mixtures of solvents and non-solvents for the resin which temporarily swell the yarn. It can also be dyed by means of many types of dyes according to standard dyeing procedures which are modified slightly as to temperature and the use of dispersing agents for the dye. Some oil-soluble dyes can be applied to the yarn from hydrocarbon baths.

Vinyon can be knitted, woven, or braided on the conventional types of textile machinery. Prior to weaving it should be warp sized with a hygroscopic sizing agent, which will form a pliable film on the yarn. It is desirable to carry out weaving operations under conditions of high relative humidity in order to reduce the development of static electrical charges.

Applications proposed for the new yarn include the following: industrial filter fabrics, fish lines, nets and seines; acid and alkali-resistant clothing; protective pipe covering; electric insulation; shower curtains; bathing suits; waterproof clothing; fireproof awnings and curtains; hosiery; and fusible shape-retaining fabrics. Staple fibers of vinyl resin in admixture with natural materials, such as cotton or wool, are said to make possible the production of fabrics which will maintain a pressed crease or fold.

Glass Fibers

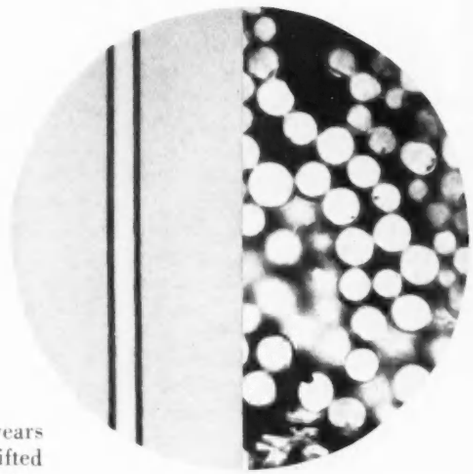


Fig. 3. Fiberglas (500x)—left, longitudinal; right, cross-section

WITH THE DEVELOPMENT a few years ago of Fiberglas, glass fibers were lifted out of the category of curiosities having no practical use to that of a textile raw material with many potential applications. Today Fiberglas is being produced by two processes—the continuous-filament process, and the staple-fiber method.

In each process glass marbles are fed into an electrically heated furnace which has a trough or V-shaped bushing made of metals of a higher melting point than glass. In the continuous process, molten glass, entering the wide top end of the bushing, is "drawn" downward by gravity, the glass emerging from 102 tiny holes in the bottom of the bushing. The filaments, averaging 0.00017 to 0.0002 in. in diameter, are combined to make one strand measuring 0.024 in. in diameter for winding on spools. A number of strands can be plied together to produce a yarn of any size required.

In the staple process, the molten marbles are forced downward through holes of the same type as in the continuous process, but, instead of being "drawn," they are blown dowward by steam under high pressure. Passing through a burst of flame to eliminate moisture, the fibers, averaging 8 to 15 in. in length, gather upon and are drawn from a revolving drum. The accumulation or "sliver" follows grooved wheels to be wound on revolving spools. The subsequent spinning operation is carried out on ordinary textile machinery.

Spun yarns have been made as fine as 100s cotton count. The yarn is put up on beams, cones, tubes, bobbins, and spools, as desired.

The fibers are produced in various colors which are not affected by heat, light, or weathering. As can be seen from the photomicrographs in Fig. 3, the fibers are solid, circular in cross-section, and smooth. Fiberglas is fireproof, resistant to acids (except hydrofluoric and phosphoric), weatherproof, and mildew-proof. It has good dielectric properties and good thermal-insulating characteristics. It is attacked by strong or hot solutions of caustic soda.

Fiberglas has a high tensile strength which can be varied by changing the glass formula. In general, finer yarns have a greater tensile strength than coarser yarns of the same size. The tensile strength and elongation of the basic 102-filament Fiberglas yarn are as follows:

Tensile strength 6.3 grams per denier
Elongation 1 to 2%

The strength expressed in grams per denier of yarns spun from the staple fiber type is somewhat lower and elongation is higher, 2½ to 4%. The fibers lose strength when abraded and hence, unless they are protected by a flexible coating, are not suitable for applications involving severe flexing. Again, while the fibers themselves are waterproof, fabrics woven from them are more susceptible to mechanical damage when wet than when dry. Resistance of fabrics to abrasion has been improved considerably since Fiberglas was first introduced, and further progress along that line is expected. At temperatures above 600° F. there is a loss in tensile strength and at 1,500 to 1,600° F. the fibers start to soften or melt. Fiberglas yarns are approximately 2 to 2½ times as heavy as cotton yarns of the same diameter.

Fiberglas yarns can be woven, braided, or knitted on the usual types of textile equipment. During manufacture a small amount of lubricant is added to the yarn. Special formulas for warp sizing have been worked out. Care is necessary to maintain equal tension.

Fiberglas cannot be dyed satisfactorily by any of the usual processes. Some experimental work has been carried out on printing with lacquer colors.

Thus far use of Fiberglas textiles has been confined to industrial and decorative purposes. Some knitted fabrics have been produced experimentally. Aside from shoe fabrics, no attempt has been made commercially to manufacture fabrics for wearing apparel. Among the more important industrial applications are included filter fabrics; yarns, braids, tapes, and other materials for electrical insulation purposes; anode bags used in the electroplating industry; wicking for oil stoves and lamps; pump diaphragms; and belts for resisting high temperature fumes and acids. Draperies made from Fiberglas are now on the market in a wide range of designs and colors. Among other potential household uses are tablecloths, bedspreads, curtains, upholstery, wall coverings, and awnings. Still other applications are rope and twine and sewing thread for sewing glass textiles.

Casein and Soy Bean Fibers

Fig. 4. Lanital (500x)—left, longitudinal; right, cross-section

SYNTHETIC FIBERS derived from casein are being produced commercially in several foreign countries, and on an experimental scale in this country. Lanital, a casein fiber made in Italy, is being imported into the United States in small quantities. In general, casein fiber is produced by precipitating casein from skim milk, dissolving it in an alkaline solution, ageing, spinning by extrusion through spinnerets into an acid bath, cutting the continuous filaments into desired staple lengths, washing, treating with dilute formaldehyde solution, and drying. Photomicrographs of Lanital are shown in Fig. 4.

Lanital is available in sizes of 3 and 5 den.; and in any staple length required for spinning on the cotton, woolen, or worsted system.

Chemically, Lanital bears a close resemblance to wool, the chief difference being the lower sulphur content, as shown by the following figures:

	Lanital	Wool
Carbon	53.00	48.25
Hydrogen	7.00	7.57
Oxygen	23.00	23.66
Nitrogen	15.50	15.86
Sulphur	0.70	3.66

Lanital is not susceptible to moth attacks, and it is said that the textiles made from it do not shrink. Like wool, casein fiber is susceptible to damage by alkalis. The strength of Lanital is said to be 85% of that of wool; elongation is about the same; true elasticity is somewhat less.

Physically Lanital differs from wool in that it lacks the surface scales characteristic of wool. Lanital has a resilient wooly feel, but is not so firm as wool. It burns with the characteristic odor of wool.

Lanital can be dyed with most acid dyes according to the same general procedures as are used for wool. Some Chrome Fast colors can be applied by the usual methods; others by a modified method. Neolan dyes require a special method. Direct colors as a class have a greater affinity for Lanital than for wool.

Used alone or in combination with wool and/or viscose staple, Lanital is being employed in the manufacture of coatings, suitings, uniform fabrics, dress goods, hosiery, underwear, sweaters and other apparel fabrics.

A PATENT was granted in December, 1938, to two chemists connected with the U. S. Department of Agriculture for the production of casein fiber by a somewhat different method than that employed in making Lanital. One of the large dairy companies in this country is now experimenting with casein fiber, but is not producing it commercially. In July of this year another patent was granted to the chemists referred to above covering the production of a synthetic fiber by extruding into a precipitating bath a dispersion consisting of skimmed milk to which has been added sufficient casein to bring the protein content to between 6 and 25%, a plasticizer, and alkaline earth compounds.

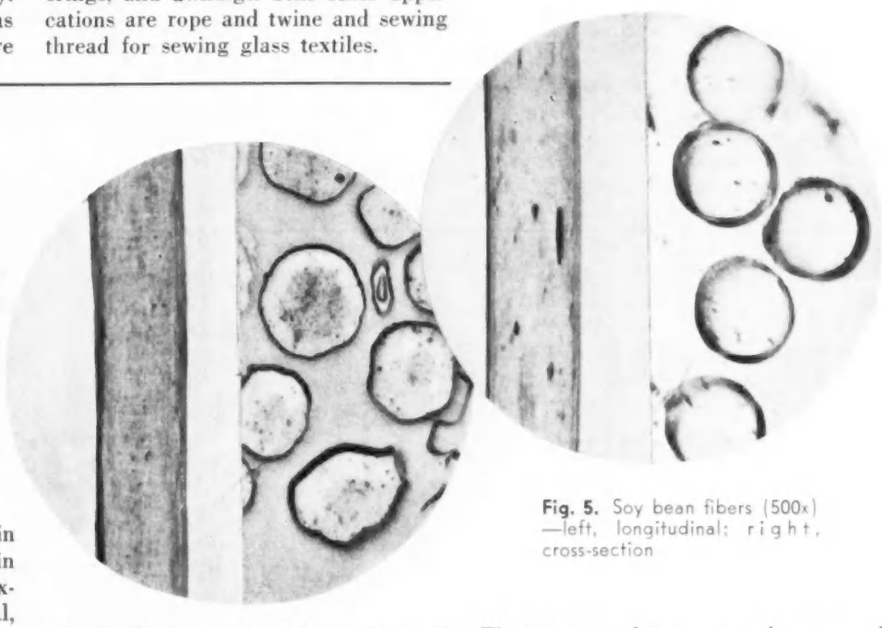


Fig. 5. Soy bean fibers (500x)—left, longitudinal; right, cross-section

The patent also covers the use of skimmed milk which has been condensed or evaporated to increase its casein content.

PROTEIN FIBERS derived from soy beans are being produced in this country on a laboratory scale by two companies, one of which has recently announced plans to build a pilot plant in which the experiments will be continued. The process employed is, briefly, as follows:

First the beans are crushed into meal and the oil is extracted. The meal is then treated with a saline solution which extracts the protein. By a chemical process the protein is made into a viscous solution, which is extruded through a spinneret into a coagulating bath. The filaments are then wound on to a reel or spool ready for bleaching, dyeing, etc. From the photomicrographs of soy-bean fibers shown in Fig. 5 it will be noted that they are somewhat smoother and more nearly round than are Lanital fibers.

Soy bean fiber is somewhat similar to wool in its chemical and dyeing properties. The fiber is said to be moth-resistant and to have good thermal-insulating properties. It is stated that

tensile strength at present is about 80% of that of wool and that this property is constantly being improved.

Fabrics have been woven from the fiber experimentally. Further development work on production of fabrics suitable for upholstery is now in progress.

Corn Meal Fibers

ANOTHER TYPE of protein fiber is produced from zein, a material derived from corn meal. A patent covering the manufacture of this fiber was granted in May of this year, but development work on the fiber is still in the laboratory stage. The fibers can be prepared by extruding zein solution through spinnerets into a coagulating bath while simultaneously contacting the zein with a reactive aldehyde, such as formaldehyde, and subsequently subjecting the resultant filaments to elevated temperatures. According to the patent specification, zein fibers have satisfactory elasticity and resilience, while wet strength, elastic recovery, and abrasion resistance are superior to synthetic fibers derived from cellulose. The fibers can be colored by inclusion of spirit soluble dyes in the zein solution or by methods used for protein plastics.

Viscose and Cuprammonium

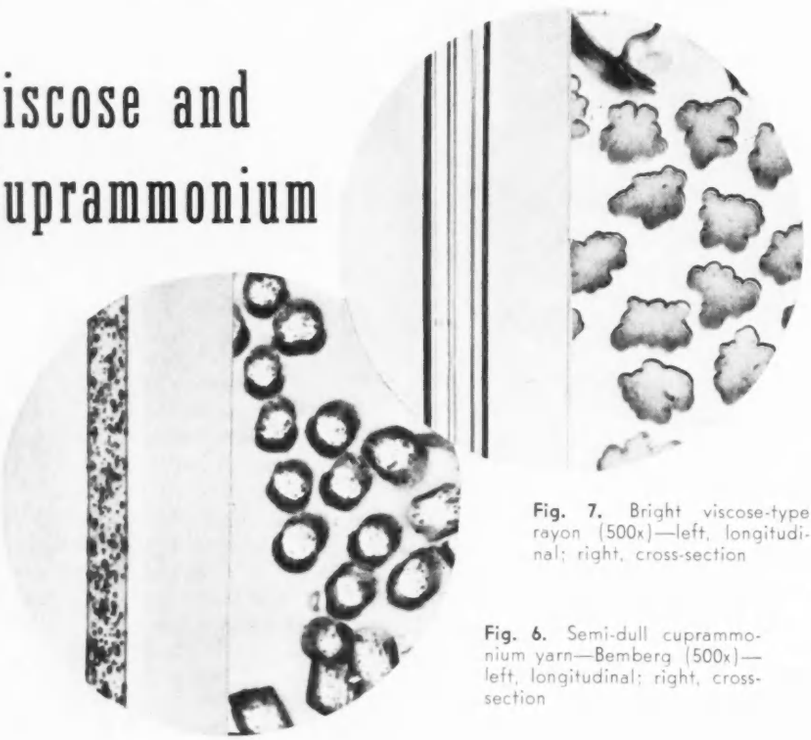


Fig. 7. Bright viscose-type rayon (500x)—left, longitudinal; right, cross-section

Fig. 6. Semi-dull cuprammonium yarn—Bemberg (500x)—left, longitudinal; right, cross-section

REGENERATED CELLULOSE fibers are now being produced commercially in this country by the cuprammonium process and the viscose process.

CUPRAMMONIUM RAYON is made by dissolving purified cotton linters in ammoniacal copper hydroxide solution, extruding through a spinneret into an acid coagulating bath, and washing. Some cuprammonium rayon is spun by a continuous spinning process, but most of it is produced by the stretch spinning process. The outstanding characteristic of cuprammonium rayon made by the stretch spinning method is the exceptional fineness of the filaments which can be obtained. Thus, a continuous-filament yarn has been made as fine as 15-den. composed of 24 filaments and is being produced commercially in such sizes as 40-den., 30-fil., and 150-den., 225-fil. Photomicrographs of semi-dull cuprammonium rayon produced by the stretch spinning process are shown in Fig. 6; pigment particles which produce delustered effect appear as black spots in photomicrographs.

Continuous-filament cuprammonium yarn in bright and semi-dull lusters is finding use in a growing variety of woven and knitted fabrics where the fineness of the yarn and its other characteristics make it particularly desirable. Some cuprammonium rayon staple has been made in this country but as yet it has not assumed any great importance from a volume standpoint.

VISCOSE-TYPE yarns and fibers in various forms are at present by far the most important of any of the synthetics from the standpoint of volume consumption. Viscose is a regenerated cellulose obtained by treating wood pulp or cotton linters with carbon bisulphide and caustic soda; extruding the cellulose xanthate through spinnerets into a coagulating bath; and desulphurizing, washing, and bleaching the filaments. Photomicrographs of bright viscose filaments are shown in Fig. 7. The most recent developments in production of viscose type continuous-filament rayon have been for the purpose of improving the tensile strength, elasticity, uniformity, fineness, and other properties. Strength and elongation of a good quality of ordinary bright, continuous-filament viscose yarn are as follows:

Tensile strength (dry)	2 grams per den.
Tensile strength (wet)	1 gram per den.
Elongation (dry)	20%
Elongation (wet)	22%

Other fairly recent developments are the so-called thick-and-thin yarn used to produce shantung effects in woven fabrics, and abraded-filament yarns.

HIGH-STRENGTH VISCOSE. Modification of the spinning process employed in the manufacture of viscose rayon permits production of yarns having a higher tensile strength, both dry and wet, than is obtained by the usual methods. Spinning conditions, such as amount of stretch applied to the filaments while they are in a plastic state, can be controlled to give any desired tensile strength and elongation over a fairly

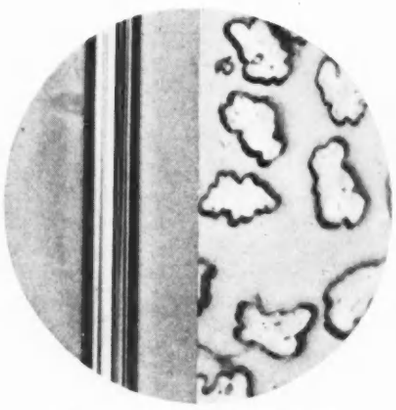


Fig. 8. Cordura (500x)—left, longitudinal; right, cross-section

wide range. High-strength viscose type yarns produced in this country include Cordura, Tenasco, and Rayflex. Photomicrographs of Cordura are shown in Fig. 8; note greater thickness of cell wall, as compared with ordinary viscose rayon in Fig. 7.

The tensile strength and elongation of two types of Tenasco are shown below. Type A is the most highly stretched yarn; Type B, a less highly stretched yarn.

	Type A	*Type B*
Tensile strength (dry) . .	3.6	3.2
Tensile strength (wet) . .	2.2	2.1
Elongation (dry)	9%	17%
Elongation (wet)	18%	21%

Thus far the most important use for the highly stretched strong yarns has been in the manufacture of tire cords. For this purpose, incidentally, cotton linters are being used as the raw material. The highly stretched yarns are also used in making belting, sail cloth, and other mechanical fabrics.

Within the last year or so a number of new applications for the various types of strong yarns have been announced. Among these are the manufacture of fabrics for shoe linings and football uniforms, broadcloth shirtings, sports clothes, half-hose, full-fashioned hosiery, flat knit goods, transparent velvet, lace, and twill and satin linings. One of the most recent developments is a triple-sheer dress fabric. Other suggested uses are for towelings, draperies, filter fabrics, covering rubber yarns, etc.

RAYON STAPLE. Viscose type rayon staple is produced from wood pulp in essentially the same manner as is continuous-filament rayon, the major difference being that the spinning machine is so arranged as to permit a very large number of filaments coming from various spinnerets to be drawn together in rope form. The filaments—before or after washing, desulphurizing or bleaching—are cut into desired staple lengths. It is available in sizes of 1¼, 1½, 3, 4½, 5, 5½ and 10 den.; in lengths of 1 7/16, 1½, 1 5/16, 1⅞, 2 and 5 in.; and in bright and dull lusters. Spun rayon yarns made from the cut staple are softer, more pliable, hairier, and lower in tensile strength than are continuous-filament yarns of a corresponding size.

Spun rayon yarns made from fine deniers of staple have a higher strength than those made from coarse staple. Again, the longer the staple up to a certain point, the higher is the strength of the spun yarn; experiments made in England indicate that from the standpoint of yarn strength a staple length of approximately 2½ in. is the optimum, and that the strength of a spun rayon yarn made from 1½-den. staple of that length would be only about 15 to 18% below that of the corresponding continuous-filament yarn.

STRONG FIBRO: Viscose rayon staple produced by a modified process similar to that employed in spinning the high strength continuous-filament yarns is now being imported from England and is sold in this country under the name Strong Fibro. It is available in 1¼-den., ⅞-in. lengths, and 1½-den., 1 7/16-in. lengths. Spun yarns made from 1 7/16-in. Strong Fibro have an 8 to 17% higher dry strength and 17 to 21% higher wet strength, depending on the count of the spun yarn, than have corresponding yarns made from ordinary rayon staple.

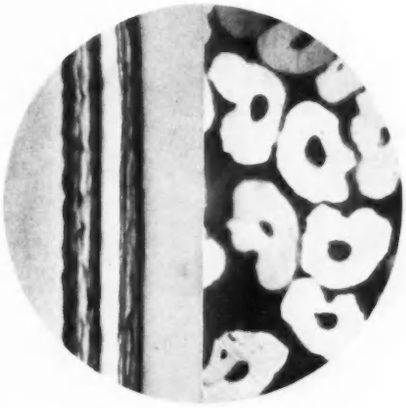


Fig. 9. Wool-imitation staple fiber — Kohorn (500x) — left, longitudinal; right, cross-section

Another form of viscose staple being imported into this country from England is spun-dyed in black, brown, and two shades of gray.

WOOL-IMITATION staple fiber is a viscose staple fiber of a special type developed by Baron Oscar Von Kohorn. It is being produced commercially in twelve plants in Japan, and equipment for its production has recently been made available in this country. The fiber can be made in any denier or staple length required. It is said to be the only wool-imitation staple fiber made strictly according to the viscose process.

In its chemical and dyeing properties this type of rayon staple is similar to viscose. In certain of its physical properties, however, the fiber resembles wool. As can be seen from the photomicrographs in Fig. 9, the fibers have a scaly surface structure and an air-inclosing space extending through the whole length of the filament. The fiber also resembles wool in luster, handle, and crimp. This crimp is permanent, being incorporated into the fiber during the formation of the filament, and is said to impart loftiness and fluffiness to materials made from the fiber, while the air-inclosing space adds to the thermal-insulating properties.

Wool-imitation staple fiber can be spun on the cotton, woolen, or worsted system, and can be blended with cotton or wool. Its chief use is in producing fabrics of wool-like appearance and handle.

Modified Viscose Staple

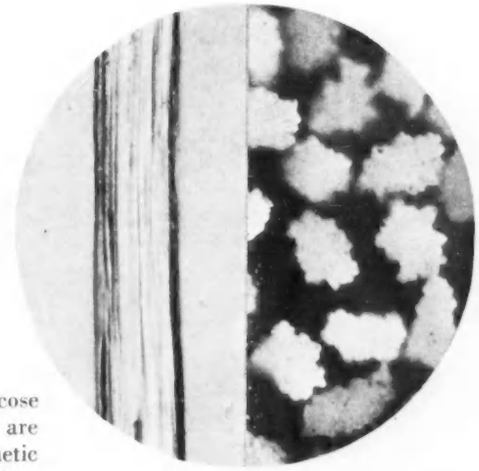


Fig. 10. Cisalfa (500x)—left, longitudinal; right, cross-section

IN EUROPE several types of viscose staple are being produced which are modified by incorporating a synthetic resin or casein in the spinning solution. A product of the latter type, made in Italy and being imported into this country in small quantities, is Cisalfa. This type of staple is more wool-like in appearance and handle than ordinary viscose staple. However, in its dyeing properties it is more like viscose than wool, although some chrome colors can be employed. Photomicrographs of Cisalfa are shown in Fig. 10. Cisalfa is available in a size of 4 den. and in lengths of 1⅜, 1½, 2⅓, 4, and 5 in.

The other type of modified viscose is being produced in England under the names Rayolanda X and Rayolanda WD, and is being introduced into this

country. Both varieties have a soft warm wool-like handle and are made in bright and dull lusters. In general, Rayolanda WD is similar to wool in dyeing properties, while Rayolanda X has less affinity for wool dyes. Both have a higher affinity than ordinary viscose for direct colors. Rayolanda WD is intended chiefly for use alone or with wool when solid shades are desired. Rayolanda X is intended for use alone with ordinary viscose staple or cotton, or—to obtain cross-dyed effects—with wool. Rayolanda is produced in various lengths and deniers for spinning on the cotton, woolen, and worsted systems. Yarns made from Rayolanda have a slightly lower dry tensile strength than those made from normal viscose staple, but approximately the same wet strength. Rayolanda is more water repellent than regular viscose staple and absorbs much less moisture when steeped in water.

Acetate Fibers

Fig. 11. Dull-luster acetate rayon (500x)—left, longitudinal; right, cross-section

ACETATE RAYON accounted for approximately 30% of the total volume of continuous-filament rayon produced last year in this country. Acetate rayon is produced by dissolving cellulose acetate—derived usually by acetylating cotton linters with acetic anhydride—in a suitable solvent and then forming the filaments by extrusion of the solution through spinnerets into warm air. Photomicrographs of dull-luster acetate rayon are shown in Fig. 11. As is generally known to textile men, acetate rayon differs considerably from the regenerated cellulose types in chemical and dyeing properties.

As is true of viscose yarn, the tensile strength of acetate yarn varies with different deniers and lusters. Results of tensile strength and elongation tests on a representative acetate yarn are given below.

Tensile strength (dry)	1.35 grams per denier
Tensile strength (wet)	0.83 grams per denier
Elongation	23%

Cellulose acetate is soluble in a number of organic solvents, such as acetone; fuses at a temperature of about 500° F.; is delustered in water or other liquids at about 200° F.; and is saponified by strong alkalis.

STRONG ACETATE. Acetate yarns having a high tensile strength can be obtained by a special stretch spinning process. It is believed that these will be produced in this country upon completion of a plant now being built in Virginia. The yarn can be spun as fine as 1/10 den., and, if desired, can be saponified to give the dyeing properties of viscose yarn. Also it can be produced in the form of staple fiber of either the straight or kinked type. Tensile strength and elongation are reported to be as follows:

Tensile strength (dry)	6.8 grams per denier
Tensile strength (wet)	5.6 grams per denier
Elongation	7%

ACETATE STAPLE is now produced in this country by three companies. It is available in sizes of 1½, 2, 3, 5, 5½, 8, 12, 16 and 20 den.; and in lengths of $\frac{1}{16}$ (for flock), $\frac{15}{16}$, 1⅛, 1½, 2, 2¼, 2½, 3, 5, and 7 in.; in bright and dull lusters; and in white and black. In its affinity for dyes and behavior toward chemicals acetate staple resembles continuous-filament acetate rayon. It has marked dielectric properties. Another important property is its natural resiliency, which results in lofty, wrinkle-resisting fabrics.

Teca, one brand of acetate staple produced in this country, is characterized by having an inherent crimp or waviness; the crimp varies somewhat with the denier, but averages from 8 to 12 crimps per inch. Acele, another brand recently announced, is referred to by the producer as a crinkled acetate rayon staple.

Acetate staple can be used alone or blended with viscose staple and/or with other vegetable or animal fibers. Spinning can be carried out on the cotton, woolen, or worsted system.

Spun acetate yarns can be warp sized with either gelatine or vegetable gum sizes. The drying cans should be maintained at a low temperature, and a stretch of over 2% should be avoided. No particular difficulties are encountered in weaving. In knitting, addition of about 5% of good neutral oil is essential, and this is usually applied during the coning operation. Tensions should be kept as low as possible.

Dyeing can be carried out in raw stock, top, skein, package, and various types of piece goods dyeing machines. If dyed in the form of raw stock, acetate staple should be re-lubricated before carding.

Among the wide variety of uses for fabrics composed in part or whole of acetate staple are included those for men's and women's wear, blankets, and upholstery. Experiments indicate that in the near future it may be employed in carpets and rugs.

ABRADED-FILAMENT YARNS. Intermediate between continuous-filament yarns and those spun from rayon staple are abraded-filament yarns, such as Celofil and Tubize No. 33 Acetate. These yarns are produced by passing continuous-filament yarn over a rough surface and thus snagging and breaking some of the surface filaments. Such yarns have a higher covering power than the original continuous-filament yarns and are said to be stronger than the equivalent size of spun-rayon yarns. Typical sizes of abraded acetate yarn are 100, 150, 200, 300, and 400 den. Abraded-filament yarns are employed to give fabrics of worsted-like appearance; they can be piece dyed in dark shades without destroying the desirable matte effect. Thus far abraded yarns have been employed mainly for dress goods, although some fabrics for men's wear have been produced.

DISCONTINUOUS-FILAMENT YARNS. Introduced less than a year ago is Tecafil, an acetate yarn made by the Perlock system. This type of yarn is produced from continuous-filament sliver by breaking the fibers and drafting and spinning them. Tecafil is described as resembling continuous-filament yarns in appearance, and spun rayon yarns in pliability. It is expected to find use in manufacture of dress fabrics and other materials where these characteristics are desirable.

Handling Rayon in the Mill

Practical pointers on blending, throwing, weaving, knitting, and finishing

WHAT TO DO with rayon after it is received at the mill, and how best to do it, is the primary consideration of operating men in every mill of the increasing large group into which synthetic yarns and fibers have found their way.

What proportions to use in blending rayon and wool on the cotton or worsted system, and at what process the actual blend should take place; how to avoid defects in producing currently popular types of yarn; methods of maintaining looms in such condition that they will satisfactorily weave today's fabrics; means of tracing knitting defects quickly and accurately to their source, and then of removing the source; data on handling in dyeing and finishing departments of acetate-viscose mixture fabrics—these are questions on which today's mill man, if he is to operate progressively and with some chance of profit, must keep informed.

In the following articles the aim has been to assemble a worthwhile selection of data on these subjects—data which will be of assistance to the average mill man in the conduct of his daily tasks.

Blends on Cotton System

By A. L. BRADFORD

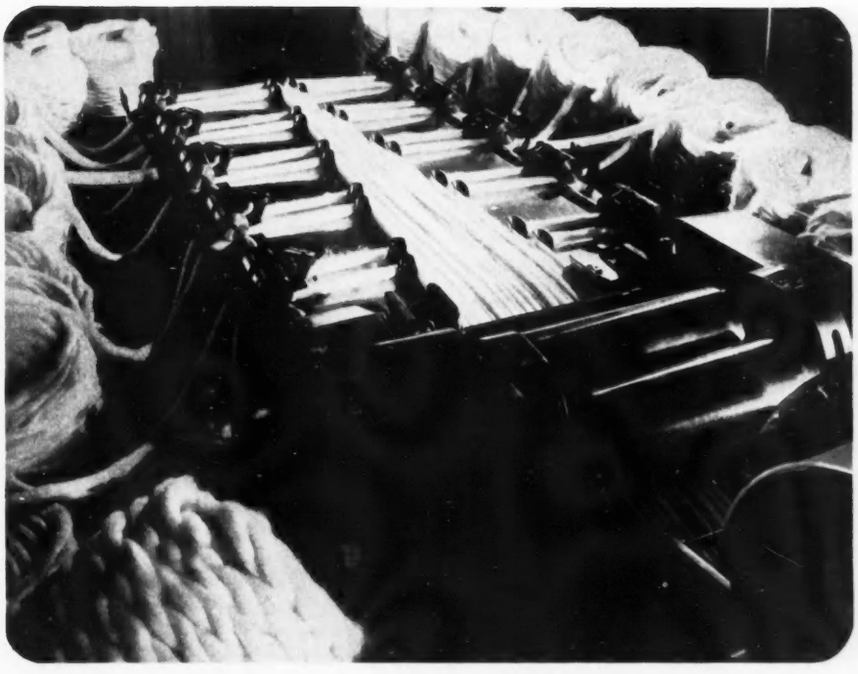
THE COTTON SYSTEM of spinning is well adapted to production of yarns comprising blends of wool and rayon staple. Generally, 64s quality wool is used. It is selected on account of its fineness, its staple length, and its diameter—which is about equal that of a 5.5-den. rayon staple. Rayon staple of 1½ in. length and 1½ den. is practically standard for cotton machinery.

The method used in making the blend varies in different mills, but the results of many tests indicate that the following method will probably give good results. Run the wool top (top is combed wool in sliver form) through the drawing frame once, or twice if necessary, to reduce it to the desired weight. Card the rayon separately. The rayon-staple sliver and the wool sliver can be made of such a weight per yard that by combining the slivers in the required proportion into a lap, one can obtain any desired percentage of each of the fibers.

A Derby doubler or a sliver-lap machine can be used to make the blended lap. If the sliver-lap machine is used as a blender, four of the narrow laps from this machine will be used to fill the lap roll at the back of the card. The feed of the card must be regulated so that the card will produce the required weight of sliver. To avoid excessive waste on the card, some mills cover the space between the feed plate and the lickerin screen with a plate; however, the plate must not touch the lickerin. Straight-tooth wire is recommended on the cylinder and doffer of the card because the presence of wool makes it difficult to obtain good carding with regular knee wire. After carding, follow the procedure used for regular cotton stock, and use the extra care generally accorded the handling of rayon blends. Before carding rayon staple, add ¾% of a suitable oil at the opening process.

In the preparation of rayon staple for the card, to prevent loss of good material as waste during the opening and lapping processes, a curved metal sheet can be fitted concentric with, but set behind, the beater-bar circle. The bars themselves should be left in the machine, as they assist the opening action of the beater. Leaf bars can either be taken out and a plain sheet inserted, or they can be covered with sheets fitted and screwed in in sections. The brake controlling the rack heads should be considerably relieved by sliding the weight nearer to the fulcrum; otherwise difficulty will be experienced in withdrawing the slip rods and also the laps will be too hard. Good results will be obtained with a temperature of 75° F. and a relative humidity of 50 to 55%.

The different fibers can be processed



A sliver-lap machine can be used to make the blended lap

better if the rayon is carded separately, then blended with the wool by the method outlined.

Best results are obtained from blends in which the staple lengths of the fibers are similar. Ordinarily, the wool will have to be cut to the proper length. However, if uncut wool is to be used, a short-staple French-combed wool top is usually preferred.

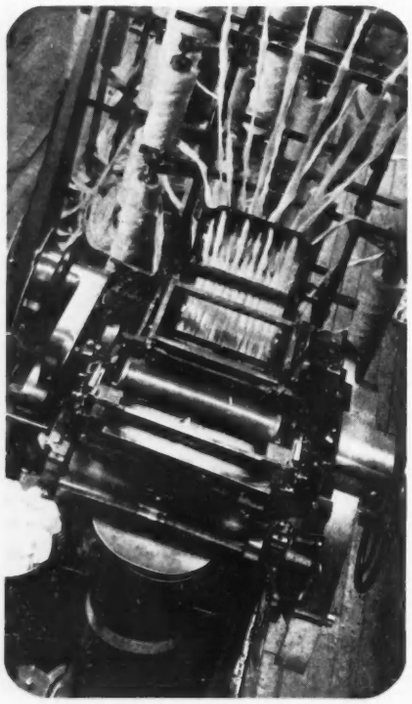
Staple in Worsted Mills

By JOHN C. LOWE
Lowell Textile Institute

IN WOOL AND RAYON staple blends, the rayon is generally of a finer diameter than the wool. For example, 3-den. rayon may be blended with 70s and 80s quality wool; 5-den. with 56s to 60s quality; and 8-den. with the quarter-bloods. Even coarser deniers may be blended with luster wool and mohair, depending upon the effect desired. If it is desired that the wool fiber be prominent, with the rayon staple buried as much as possible in the core of the yarn, use a rayon that is finer than the wool. If the rayon staple is added for its decorative effect, use rayon of a diameter either equal to or slightly coarser than that of the wool.

There are several important considerations which govern drawing of 100%-rayon-staple blends on the Bradford system. The rayon top should contain the necessary amount of moisture—11% regain for viscose staple and 6½% for acetate staple will not be excessive, but it should be remembered that too high a moisture content weakens the fiber. Cold machines must be avoided, or excessive lapping around the rolls will occur.

Too high a temperature will tend to cause static, but correct moisture conditions will reduce this tendency considerably. Temperature in the drawing and spinning rooms should be between 60 and 70° F., and relative humidity should not exceed 60%. Authorities



Some worsted mills blend at the two-spindle gill box or a previous process; others at the drawing frame

claim that between 50 and 60% r.h. represents satisfactory limits. In the presence of high humidity the rayon staple will be weakened.

No lubricant need be added to the stock unless the top is without oil. If oil is required, from ¾ to 1¼% represents a safe amount to add. There are several products on the market suitable for this purpose. For 100% staple rayon, ⅕ to ¼ of the lubricant used may be glycerine, although many manufacturers used the special lubricants developed for this purpose without any adulteration.

The longer the rayon staple, the less it should be worked, in order to prevent excessive breakage. Naturally, high speeds combined with long drafts will also increase fiber breakage, which will be revealed by an excessive amount of fly and rubber waste.

Due to the regularity of the staple length and the ease with which it can be drafted, longer drafts and fewer operations can be used for rayon staple than for wools. It is well to get a twisted end as soon as possible, by starting at the two-spindle gill box. Some mills even make their blends behind the two-spindle gill box. Others prefer to blend before starting the drawing; this procedure yields a better blend in the final yarn.

Spinning drafts used for rayon are much higher than those used for wools; a draft of as high as 14 has been used in the spinning of 5-in. rayon staple.

Suggested organizations are shown in Table I. To make possible a direct comparison between the two, both are for the production of 1/20s yarn from a 3½-oz. rayon-staple top with a 5½- to 6-in. staple length. Both will give good results.

The ratch settings given are tentative. Test the ratch as would be done for wool, and change accordingly. Slow speeds at the drawing will produce smoother roving and more even yarn. Actual drafts, due to contraction, will be longer than the calculated drafts—about 3 to 3½% in drawing and 5% in spinning.

Strict attention must be given to the removal of collections of fly. Rubbers should be cleaned at least twice per doff, and oftener if necessary. Rayon stains easily; therefore, when the rolls are being oiled, care must be taken to keep oil off the rolls, flyers, and bobbins. New bobbins may be required, or the old bobbins may be cleaned and refinished to remove oil and roughness which may be present.

TABLE I—Organizations for rayon staple on worsted machinery

Operation	Doublings	Draft	Dram wt. delivered per yd.	Ratch
Organization No. 1				
Two-spindle gill box	4	7.00	256	Close
Weigh box	4	7.50	136	6½ in.
Finisher	3	8.00	51.2	6¼ in.
Rover	2	8.00	12.8	6⅛ in.
Spinning frame	1	14.00	0.9(1/20s)	6⅛ in.
Organization No. 2				
Two-spindle gill box	4	6.75	265	Close
Weigh box	4	6.75	157.5	6¾ in.
Finisher	4	7.00	89.9	6½ in.
Reducer	3	7.20	37.5	6¼ in.
Rover	2	7.50	10.0	6⅛ in.
Spinning frame	1	11.00	0.9(1/20s)	6⅛ in.

Handling Acetate Staple

HANDLING ACETATE STAPLE in the mill was discussed in a paper delivered by Dr. Harold De W. Smith, at a meeting of the Textile Institute, in Bath, England, from which the following is abstracted. Although the suggestions refer specifically to the processing of Teca, they are applicable in general to other brands of acetate staple.

In order to insure good pliability of the fiber and to carry off static charges as they are formed, it is recommended that acetate staple be processed at temperatures of 75 to 80° F., and the following relative humidities maintained: carding and spinning, 50 to 55%; quilling, 55 to 60%; warping, 65%; and weaving, 60 to 65%.

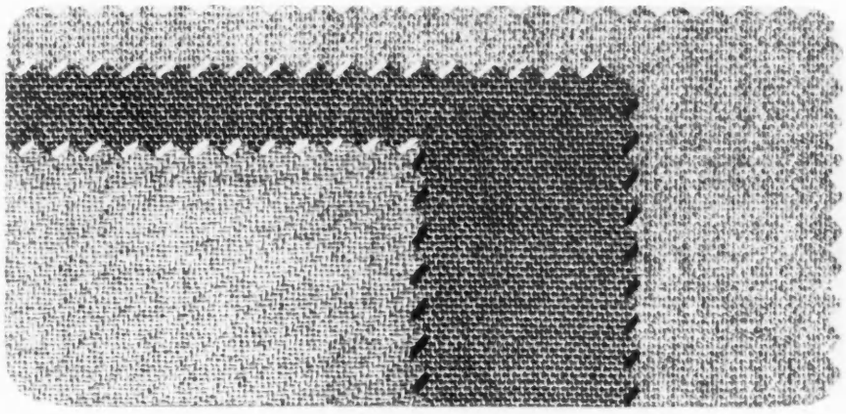
In spinning on the cotton or woolen system no fiber lubricant, other than the finish applied by the producer of the fiber, is necessary. On worsted machinery, some mills find it advantageous to add lubricant at the gill-box between carding and combing, at which point wool tops are usually lubricated.

No opening is necessary unless the fiber is to be blended with other fibers. In woolen and worsted mills, acetate staple is usually put through a picker and blown to storage. Speeds of beater and fan should be reduced somewhat and the clearance between the beater and the feed-roll opened to between ½ in. and ¾ in. Laps may be successfully processed in weights as high as 15 oz. per yd.

The fiber will card satisfactorily on cotton, woolen, or worsted cards with card speeds and settings normally employed. In subsequent machines the number of operations should be the minimum which will produce an even yarn. Twist multipliers for roving are about the same as for cotton of the same staple length. Twist multipliers for yarn are somewhat lower than for cotton yarn. For example, for 3-den., 1½-in. Teca, maximum yarn strength and elongation of approximately 12% will be obtained with a twist multiplier of approximately 3.5.

Finishing Mixture Fabrics

By PHILIP LeBRUN



Novel fabrics of mixed viscose and acetate staple fibers with a woolly finish and a worsted-like finish

FABRICS of mixed viscose and acetate staple will be common in the medium-priced field this fall. These mixed-staple cloths will be available in either of two distinct types of finish. A soft, woolly, fluffy finish is used for dress fabrics. A firm, but not stiff, worsted-like finish is given fabrics for women's suitings and outdoor apparel.

Fabrics of mixed viscose and acetate staple fiber are handled in a similar manner to those of all-viscose staple. However, mixed staple cloths have a greater tendency to form breaks than do all-viscose fabrics. Therefore, it is preferable to wet out such fabrics in the full width, free of wrinkles. The scour, itself, usually consists of either a neutral soap bath or a fatty alcohol bath fortified with a small percentage of soda ash, trisodium phosphate, etc. The pH of such liquors should be kept at a maximum of 9 to 9.5.

As mixed viscose and acetate fabrics usually are heavily starch-sized in the gray, a desizing treatment is necessary for the woolly finish. No such treatment is required for the more firmly finished cloth.

Cloth to be desized is run into a dye beck containing about 2 gal. of the desizing agent per 1,000 gal. of water at 120 to 160° F., depending upon the specific preparation used. After the fabric is treated 30 to 45 min., 5 lb. of neutral soap and a few ounces of trisodium phosphate are added to the bath. Scouring is continued for an additional 30 min. at 180° F. An overflow rinse in warm water concludes the scour.

Firm-finished materials are scoured best in the full width. The scour is the same as that used for woolly-finished fabrics except that the desizing treatment is omitted.

The majority of viscose and acetate fabrics are dyed so that the acetate is left white. The remainder is divided about equally between two-color (cross-dyed) combinations, and white viscose and dyed acetate combinations.

Usually, mixed staple fabrics are centrifuged after dyeing. It is best not to centrifuge the cloth too long, as this results in sharp, partially dried wrinkles which later show up in the cloth as crow's feet.

Soft, woolly finishes are obtained in two ways. The most economical means is to add a substantive softener to the final rinse after dyeing. About 1 oz. per piece of cloth usually will suffice. Since such softeners exhaust out of the dyebath, it is not advisable to use a standing bath for softening. The fabric is run for 20 min. at hand-warm temperature, then the bath is overflowed slightly to remove the foam which usually collects on the surface of the liquor. Pre-softened fabrics of this type are then centrifuged, dried, and framed to width.

When more fullness is desired, a subsequent mangling operation should be employed. The size solution can be either a combination of soft gum and oil or one of the newer soft resins. A typical soft gum and oil mixture can be made by adding 4 qt. of a 2% solution of carob-tree gum and 2 qt. of a good grade of 75% sulphonated olive oil to 50 gal. of water. The cloth is passed through a two-roll mangle provided with an expanding device which obviates framing the fabric before it is sized.

Depending upon the fullness desired, about 6 to 12 lb. of soft resin per 50 gal. of water will yield a soft, full finish which may be considered permanent. Most resins are insoluble if once thoroughly dessicated by drying for several minutes at a temperature of 220 to 240° F. This results in a truly permanent soft finish.

THE FIRM FINISH is obtained simply by adding a softener to the final rinse after dyeing, as described above. Firm-finished material occasionally will show short, sharp breaks. These can generally be removed by mangling in the full width. Also, it is advisable in such cases to stretch the cloth about 1 in. over the actual finished width, before the sizing operation. The sizing and subsequent drying allows the goods to shrink back evenly, so that no breaks are apparent after the final framing.

Sometimes it is possible to remove slight breaks by decatizing the fabric. Decatizing also acts as a softener in many instances. It produces a smooth, even surface, which is desirable in most firmly finished fabrics. Woolly finished materials are not helped to any extent by this process, since decating has a tendency to flatten the cloth somewhat and make it less fluffy.

Combination-Yarn Defects

By O. P. SHELTON

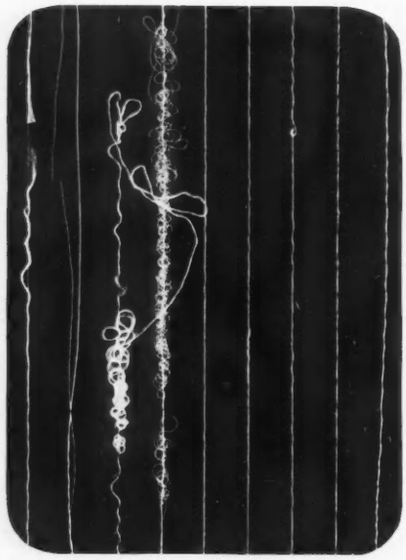
HEADACHES caused by skinbacks and broken filaments seem to be common property of practically all throwsters of combination yarns. Skinbacks are also called strip backs, skinners, and caterpillars; broken filaments are known also as fuzzy, hairy, or broken yarn. In addition, there are defects caused by loops and kinks, cut singles, spiralled yarns, twisted-in waste, slubs, shiners, etc. The purpose of this article is to explain how to correct or, better still, avoid some of the more insidious troubles. Nine common defects are illustrated in the accompanying photograph.

Undoubtedly, more troubles result from combination yarns not in correct ratio to each other than from any other single reason. This is the cause, for example, of one of the ends in a combination yarn tending to break repeatedly in throwing or weaving. Improper ratio may also result in yarns containing loops of the low-twist end, or kinks and snarls of the crepe end.

Occasionally, however, such loops or snarls are caused by insufficient tension between the feed rolls or supply package and the take-up bobbins, in either the ring- or up-twisting operations. When ring twisting, heavier travelers can be used or speeds increased. When up-twisting, flyer wires which put more angle on the yarn or give more drag can be used, a different type or heavier flyer can be substituted, or speeds can be increased. When the defects are not the result of insufficient tensioning, the first thing to do is to increase the tension on the end that is running loose. If this end is being run off a cone, tension on this strand must be increased. If disk-type tensions are in use, the drag should be increased.

When the crepe end is the loose one, provided the yarn is being run off spools, the problem can usually be solved by running the crepe end around a second spool. Throwsters producing combination yarn on the cotton system often can make use of cotton-type twisters with two different sets of feed rolls which enable positive regulation of the feeding of each end.

BROKEN FILAMENTS are quite prevalent in the low-twist single ends of combination yarns. High spindle speeds themselves, and the accompanying centrifugal force, can cause the low-twist end to fray, especially when multi-filament yarns are being used. It can also be caused by too much tension in any of the spinning operations or by the yarn coming in contact with any rough or cut surface or by hitting any object during twisting. Improper, cut, or worn travelers or flyer wires also may damage the yarn. Bobbins on which combination yarns are run must be kept unusually smooth. Corrective measures for each of the causes above listed are generally fairly obvious once the cause is located.



Left to right: slightly stripped normal end, slightly stripped crepe end, bad normal caterpillar, bad crepe skinner, light broken filaments, extreme fuzzy yarn, loops in normal end, snarls in crepe end, and spiral crepe

COMBINATION YARNS should be judged, and corrections made, from examination of the finished yarn and not from observation of yarn that has only been partially processed. For example, an examination of a combination leaving the doubler-twister before being completed on the up-twister might have a crepe which appeared slightly slack. And so it should. As twist is inserted, the crepe will contract at a faster rate than the low-twist yarn.

Again, the combination may appear to have a slightly tight crepe end between the final twisting and the twist-setting. This also is correct, for in twist-setting the crepe will be elongated slightly more than the other component yarn.

(Another article by the same author, outlining the causes of combination-yarn defects, appeared on page 89 of the May issue of TEXTILE WORLD.—*Editor*)

Knitting Machine to Blame?

By LOUIS G. GOLDENBERG

WHEN DEFECTIVE CLOTH shows up from circular knitting machines, the important thing is to determine quickly and accurately the cause of the defect, and the method by which it can be prevented in the future. Some mills spend much valuable time in determining who is responsible and in placing the blame at the door of the proper department, but this is neither a cure nor a preventive, and hence might almost be completely ignored. The following suggestions are intended to help knitters cut down the amount of defective cloth their machines produce by early recognizing trouble signs and taking necessary remedial steps.

Whenever a new number is started ½ to 1 yd. of cloth should be cut from the first piece knitted. A cut should be made in the gray, another after dyeing, and a third after finishing. Most important of these is the cut in the gray. Filed with suitable notations, it serves as a permanent record of the stitch construction and yarn composition. When the cloth is accepted as satisfactory, it serves as a guide in checking similar cloth produced by additional machines. If the occasion should arise, it is also an indisputable argument against claims of change in structure or composition. In the latter case, the cut from the finished goods is likewise invaluable.

As an illustration, a circular-knitted rayon fabric was designed with laid-in tinsel ornamenting the face. It was very attractive and found favor immediately. However, when the first production lot came through it was entirely different from the sample piece. The cloth was dull, and lighter in weight.

It happened that the fabric in question had been knitted on a commission basis for a jobber who supplied the yarn, and the obvious inference was that the cloth had been knitted looser and less tinsel laid in. By checking against the cuts of gray and finished cloth from the original piece, this was readily disproved and the true fault found. Comparison disclosed a similar number of wales and courses per inch, the same number of ends of tinsel and equal lengths of tinsel for a given width of cloth. But weighing of the tinsel showed that a heavier, less expensive type had been used in the sample. This accounted

for the extra weight and brightness of the original piece.

The knitter, of course, was blameless; and the jobber saved money by supplying the coarser tinsel for future pieces. Having the facilities for an accurate check made a quick solution possible, to the satisfaction of all concerned.

HOLES are quite often a cause of contention. Keeping a record of all imperfections, as they occur, is the only way in which warning can be obtained early enough that all is not well, either with a machine or with the yarn. Holes at random may be caused in the knitting or, in the case of cloth made from tender yarn, may result from excessive tension in finishing. Pushing cloth into the dye liquor with sticks is also a cause of holes.

Needles or sinkers may fray a sufficient number of filaments so that holes will appear in rayon cloth during dyeing and finishing. The cause of such holes can be recognized by the fact that they follow straight lines along particular wales. Holes in a straight line but uniformly spaced can usually be traced to a damaged roller, somewhere along the line, the circumference of which is equal to, or divides into, the distance between the holes.

Vertical shady stripes, or lines, if similar and from successive pieces off the same machine, may indicate worn needles, sinkers, or cylinders. Horizontal shaded stripes or bars regularly spaced may be traced to uneven pressure of a finishing roll. The distance between the bars should give a good clue to the offending roller. In a case which recently occurred, there were in a lot of goods several pieces with shaded bars about 4 in. apart and ½ in. wide. All these pieces were found to have been knitted on the same machine. Investigation showed that at the time these pieces were knitted the automatic take-up device on the machine was not operating properly: every time it rolled the cloth up it released a little too late, tightening the cloth excessively. No impression was left in the gray goods, but in the finished state the point of excessive tension showed up as a horizontal bar. Horizontal bars can be the fault of the yarn or knitting only if their width and spacing corresponds to the number of feeds on the machine.

When a lot of cloth is knitted on several machines, and the imperfect pieces can all be traced to one or two machines, the fault is most likely in the knitting. On the other hand, if pieces from most of the machines contain imperfections, it is likely the fault is not in the knitting, but elsewhere.

Systematic Loom Check-up

By GEORGE GREISS

DEFECTIVE WEAVING is a source of expense and annoyance both to the management and weave-room overseers of rayon mills. Hence, it is to each overseer's advantage to try to anticipate faulty loom conditions, and prevent their occurrence. To accomplish this requires a systematic check-up of all looms two or three times a year, depending on the amount the looms are operating.

Use of sheets like the accompanying, which is the result of actual mill practice, will enable an overseer to organize this work effectively.

When this system is in force, the overseer or head loomfixer first inspects each loom and determines what repairs or adjustments need to be made. Then the section fixer does the work, initialing each item on the sheet as it is taken care of. When the work is completed, the loom is again inspected, by overseer or head loomfixer, and initialed by him in the proper space.

LOOM CHECK-UP SHEET

(1) Sheets are to be made out in duplicate by the overseer or head loomfixer, and the second copy sent to the office at once. (2) Loomfixers are to initial each item, in the space provided, as soon as work on it has been completed. (3) A complete list of new parts used is to be noted on the reverse side of the sheet. (4) After work has been completed, the overseer or head loomfixer is to recheck the loom, and initial the sheet in the space provided. (5) Send the completed sheet to the office.

LOOM No._____ FIXER_____ SECTION No._____ DATE_____ INSPECTOR_____

DOBBY
Combinations
Knife, Top ..... Bottom
Swivels
Swivel studs
Jacks
Index fingers
Rocker arms
Rocker-arm shaft
Cords ..... Wires

GEM HEAD
Cyl. gear, Top ..... Bottom
Lock knife
Lock-knife finger
Vibrators
Vibrator shaft
Chain-shaft gear
Reverse pinion
Jacks
Cords ..... Wires

DRIVING AND SHIPPING
Crankshaft
" bearing RH ..... LH
Camshaft bearing RH ..... LH
Camshaft gear
Brake band ..... Stud
Friction plate ..... Gear
Shipper lock
Crank conn. RH ..... LH
Conn. springs RH ..... LH
Conn. bearing RH ..... LH
Conn. studs RH ..... LH
Drive

PROTECTION
Knock-off lever
Bunter
Rubber block RH ..... LH
Prot. rd. fgr. RH ..... LH
Prot. rod spring
Prot. dagger RH ..... LH

DOBBY DRIVE
Crank gear
Crank-gear bearing
Dobby connector
Conn. swivel, Top ..... Bottom
Conn. stud, Top ..... Bottom
Drive gear
Int. gear
Worm gear

BOX MOTION
Gear on camshaft
Gears on side plate — Int
Lock knife
Lock-knife finger
Vibrators
Angle lever
Stud in angle lever
Horizontal lever

BOX MOTION—Continued
Studs in hor. lever
Conn. lever, Front
Conn. lever, Back
Top gear
Bottom gear
Lifter-rod box
Upright giveaway
Spring on giveaway

MULTIPLIER
Drive gear
Giveaway gear
Clutch gear
Two-weave motion
Box indicators
Mult. indicators
Two-weave indicator
Reverse indicator
Pin wheel for box chain
Pin wheel for mult. chain

TAKE-UP MOTION
Hold pawl
Push or pull pawl
Stud in rocker arm
Connector
Pick-wheel release
Pick-wheel stand
Shaft and sleeve
Int. gear
Int. gear stud
Sand-roll bearing RH ..... LH
Take-up-roll gear

HEAD DRIVE
Bevel gear on cylinder shaft
Bevel gear on upright shaft
Compound gear
Gear on crankshaft
Clutch-box gear
Thrust bearing bottom
Sheave stands position
Sheave rolls
Sheave shafts

PICKING
Picking roll RH ..... LH
Sweep stick RH ..... LH
Picking shoe RH ..... LH
Rocker iron RH ..... LH
Lug strap RH ..... LH
Picking stick RH ..... LH
Picking block RH ..... LH
Picker rod RH ..... LH
Picker-rod strap RH ..... LH

FILLING STOP-MOTION
Feeler wires
Filling fork
Filling grid
Crank and pin
Crank conn.
Dagger
Shield

FILLING STOP-MOTION—Continued
Wire in shield
Stop in rolling rod
Cam on shaft
Cam lever

WARP STOP-MOTION
Electrode brackets RH ..... LH
Shunt magnet
Cam
Cam lever
Cam-lever stud
Knock-off rod

LAY MOTION
Rocker shaft
Rocker-shaft bearing RH ..... LH
Box plates
Raceplate
Raceplate covering
Box back RH ..... LH
Box front RH ..... LH
Binder 1-2-3-4-RH ..... LH
Swell RH ..... LH
Binder sprgs. 1-2-3-4-RH ..... LH
Shuttle check RH ..... LH
Swing reed hanger
Swing reed stand RH ..... LH
Binder pins RH ..... LH
Back stay springs RH ..... LH
Shuttle guard

LET-OFF MOTION
Beam brackets RH ..... LH
Levers on weights RH ..... LH
Whiproll
Whiproll bearing RH ..... LH
Ropes

MAGAZINE PARTS
Feeler tip
Plunger and spring
Knife and springs on Grbr
Shuttle placer
Edge-cutter knife
Flg. Ind. Slide ..... Cam
Magazine cam ..... Lever

MISCELLANEOUS
Motor pinion
Elec. wiring on loom
Rocker-paddle assembly

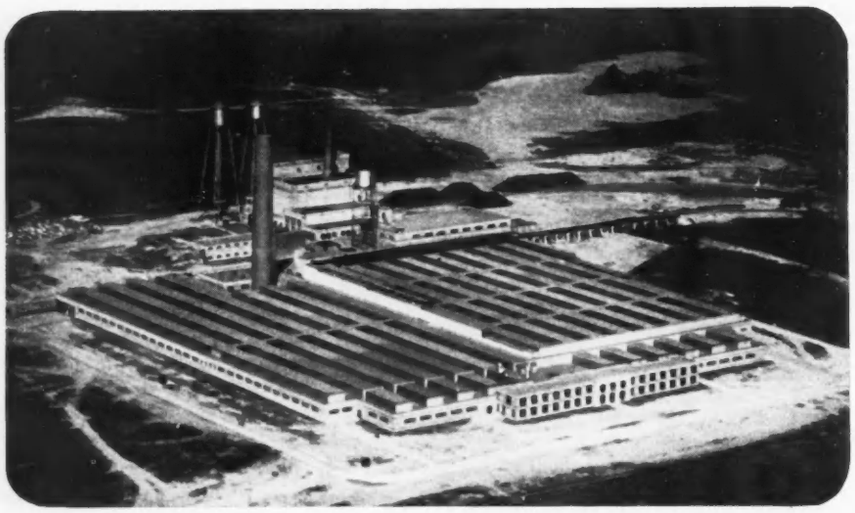
SYMBOLS

Tighten	V
Replace	O
Retime	—
Dry	A
Binding loosen up	B
Right side of loom	R
Left side of loom	L
Check on entire motion	X

DATE_____ CHECKED BY_____

New Industrial Rayon Plant

For continuous spinning of viscose yarn is designed for maximum efficiency



Airplane view of Industrial Rayon Corp. 14-acre, $11,500,000 plant at Painesville, Ohio, for production of viscose rayon by continuous process; plant is windowless and is air-conditioned throughout

THE MODERN PLANT built by Industrial Rayon Corp., at Painesville, Ohio, which has now completed several months of capacity operation, has been designed for maximum efficiency and optimum working conditions. Windowless construction, extensive use of glass block, separate air-conditioning units for each department are a few of the unusual features of this 14-acre, $11,500,000 plant, for production of viscose weaving yarns by a new continuous process. The plant has a rated capacity of 12,000,000 lb. at 150-den.

This process, developed after six years of experimental work and the expenditure of more than $2,000,000 for research, makes use of a new type of spinning machine on which the yarn is desulphurized, bleached, finished, dried, and twisted continuously—the complete sequence of operations requiring less than 6 min. as compared with 85 hr. for the usual discontinuous methods. In addition to the reduction of material in process which the new machine makes possible, and the more efficient utilization of labor attained by elimination of numerous batch processes, the process has the further advantage that it affords positive control of treatment from the time the filaments are formed until they are dried, thus assuring uniformity of the yarn in strength, elasticity, elongation, etc.

Outstanding among the many interesting features of the new Industrial plant are the 96 continuous spinning machines housed in one room 450x320 ft. As described in our December, 1938, issue, each machine is double-sided with 50 spinnerets to a side. The machine is more than 19 ft. high with three working levels. The glass-inclosed top section of the machine contains a row of thread-advancing plastic spinning reels, under each of which is a spinneret submerged in a coagulating bath. At the middle level are eight rows of processing reels of the same thread-advancing type. At the bottom level is a row of aluminum drying reels, below which are the cap twisting spindles.

The filaments formed when viscose solution is extruded from the spinneret into the coagulating bath are led upward from the bath to the back end of one of the spinning reels. They are advanced in evenly measured turns to the outer end of this reel and then proceed downward to one of the processing reels in the top row, and then from reel to reel in each of the other rows. Over each reel there is an accurately dimensioned bent-glass tube from which is flowing the chemical solution or the water with which the filaments are treatment while they are passing along that particular reel. Drying takes place on the hot-water-heated aluminum reel. The final operation in the continuous process is twisting and winding onto bobbins. Yarn speeds of about 75 yd. per min. and twister spindle speeds faster than 7,000 r.p.m. are being obtained. Each package contains approximately 2½ lb. of yarn. The photograph on our cover by Margaret Bourke-White, from Pictures, Inc., shows a close-up view of several of the processing reels on which the yarn is being treated.

DEVELOPMENT WORK. As early as 1931 or 1932 Hayden B. Kline, vice-president in charge of production of Industrial Rayon Corp., had discussed with Hiram S. Rivitz, president of the company, the need for a continuous process for spinning viscose rayon. In the middle of 1932 Mr. Rivitz authorized the commencement of development work; A. H. Burkholder, research chemist, and Walter Knebush, then research engineer, were assigned the problem of working out the method. Later Industrial effected a cross-licensing arrangement with New Process Rayon Co. (now Imperial Rayon Corp.) owner of the Furness patents for continuous spinning of cuprammonium rayon.

The work progressed satisfactorily, and in 1936 Rayon Machinery Corp., a wholly owned subsidiary of Industrial Rayon Corp., was organized to manufacture the continuous spinning machines for Industrial's use, and to build, install, and service similar units for other rayon producers. George P. Torrence, formerly president of Link-Belt Co., was placed in charge of the final development work necessary to the successful conclusion of the project, with R. F. Bergmann as his chief engineer.

Solution of the many problems incident to the commercial development of the spinning machine was facilitated by the cooperation of suppliers of parts, whose engineers collaborated in the working out of many challenging aspects of the job.

The heart of the new process is the Rayon Machinery Corp.'s patented thread-advancing reel, which accomplishes the separation and advancement of the continuous filaments.

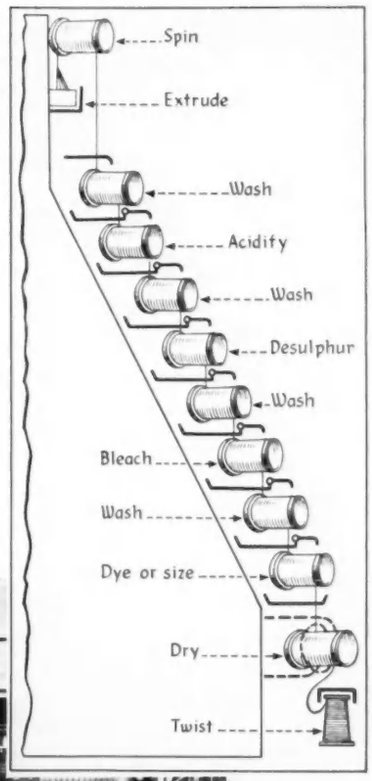
Each processing reel consists of an overhung, slat pulley and an interlocking cage of the same diameter, assembled to rotate together, but about different axes, and skewed in a manner to produce yarn lead. Each reel holds between 9 and 70 turns of yarn per inch. On the spinning reel, for instance, the yarn advances over the surface at the rate of about 1/9 in. per revolution, giving the appearance of a screw thread. Thus in very compact form a large amount of the yarn can be subjected to the action of the treating solutions in the processing section, while at the same time it can be stretched, shrunk, or prevented from shrinking, as desired.

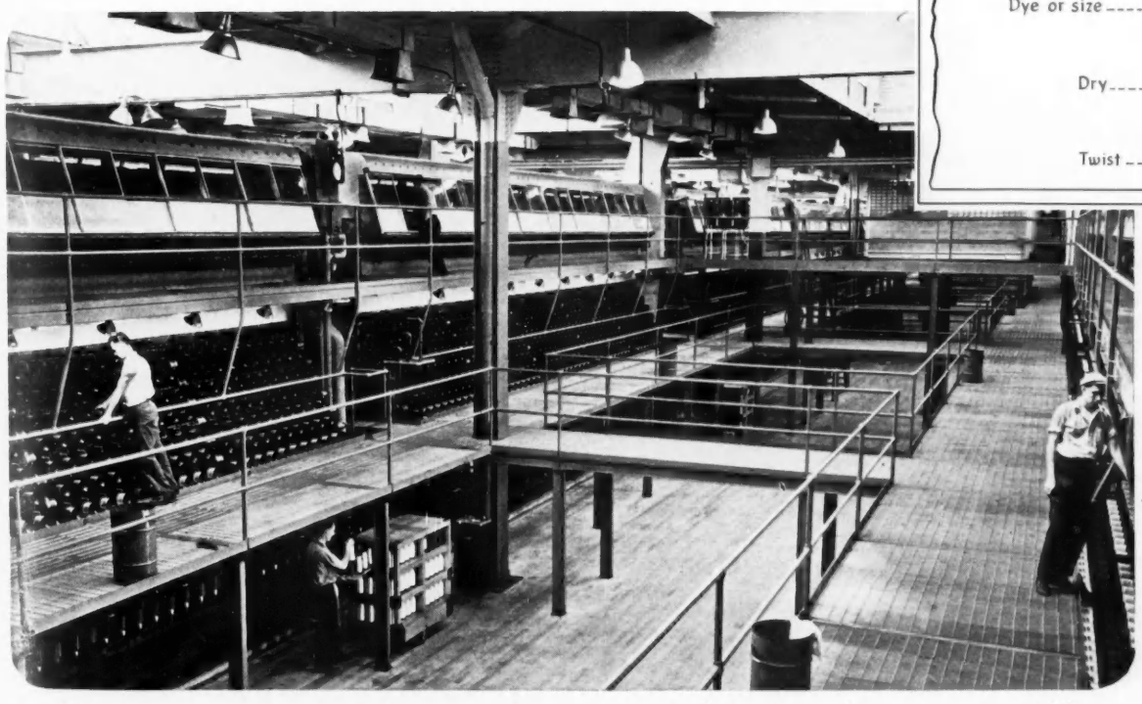
The slat pulley and cage are molded from Durez, a phenol-formaldehyde plastic, which was found to combine the required resistance to chemical action, molding characteristics, machinability, proper weight, and capacity to retain accurate dimensions and to hold up under continuous operation. The molding of the 86,400 reels—which involved special problems, due to the precision required to control forward movement of the yarn—was first accomplished by the Richardson Co., specialists in the manufacture of molded and laminated plastics. Gears for driving the reels are made from a new grade of Synthane Bakelite-laminated material developed for that purpose. A Neoprene seal protects the reel shaft against chemicals and water. The shafts are mounted in sealed, grease-lubricated ball bearings. The drying reels were fabricated from aluminum blanks furnished by Bohn Aluminum & Brass Corp. Twister bobbins are made from molded and laminated Insurok. Molded hard rubber trays developed for the purpose by American Hard Rubber Co., carry the various processing liquors which pour onto the reels through the bent glass tubes.

A single 10-hp. Westinghouse motor drives the 1,000 spinning, processing, and drying reels on each machine, with an accurately controlled variable-speed take-off to drive the Zenith gear spinning pumps. A separate motor-and-cam mechanism runs the spindle and traverse motion. Use of welded-steel construction, rather than cast iron, for the machine frames, brackets, etc., resulted in a 60% saving in weight. Over 3,000 anti-friction bearings of various types, carefully selected to meet specific requirements, are employed on each machine.

PRELIMINARY OPERATIONS. Operations preliminary to spinning follow the usual methods employed in other viscose rayon plants. All equipment, naturally, is of the most up-to-date types, and the plant layout is such as to permit gravity flow of material wherever possible. Raw materials enter the four-story chemical building via an elevated railway trestle. On the top floor of this building are the steeping presses, caustic soda storage tanks, and shredders. Pulp sheets are transferred to the presses and from the presses to the shredders with overhead monorail carriers, which are also used in dumping the alkali cellulose crumbs from the shredders to the ripening room. On the second floor are xanthating churns to which the ripened alkali cellulose is chuted by gravity. The churns in turn discharge through chutes to dissolvers on the first floor in which the xanthate is dissolved in additional caustic soda solution. Also on this floor is an installation of Cerini dialyzers of sufficient size to recover the bulk of the waste caustic from the steeping presses.

From the xanthate dissolvers the viscose flows by gravity to welded steel





View in center aisle of spinning room showing several of the 96 machines; men on middle decks are tending reels in processing section; man below has just removed a full bobbin from twister spindle. At right is schematic operation-diagram of continuous spinning machine

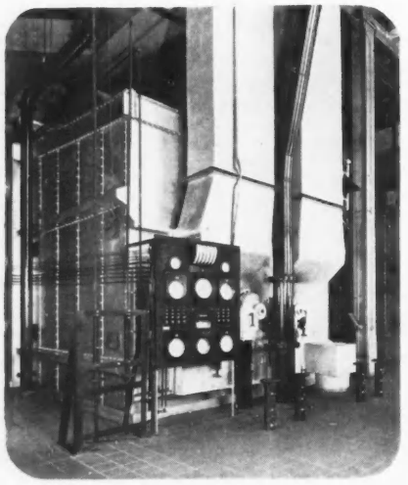
ripening tanks in the cellar beneath the spinning room. During the ripening period, the viscose receives three filtrations in plate-and-frame filters, after which it is forced by air pressure to individual filter presses associated with each spinning machine.

Also in the cellar are the coagulating bath evaporators and the pumps and make-up tanks for the various spinning machine solutions. Extending through the cellar is a pipeline gallery serving all spinning machines which contains a considerable part of the 50 miles of pipe used in the plant, of which some 12 miles is hard rubber. In all there are seventeen pipe lines, each painted a distinguishing color, for carrying ammonia, natural gas, viscose, steam, air, caustic soda, oil, water, brine, sulphuric acid, carbon disulphide, etc.

The bobbins of twisted yarn are conveyed by hand trucks to the coning department adjacent to the spinning room, where it is coned on Universal Winders. The coning department communicates directly with the storage, packing, and shipping departments.

AIR CONDITIONING. In order to obtain the rigid control of temperature and humidity essential in manufacture of rayon and at the same time to provide comfortable working conditions, air-conditioning equipment was installed to serve all manufacturing departments of the plant, as well as offices, laboratory, shipping room, kitchen, and cafeteria. The air-conditioning system requires five refrigerating units having a total capacity of 1800 tons; thirteen air-conditioning units, and two supplementary exhauster units. Air-conditioning units range in size from one having an air capacity of 500,000 cu. ft. per min. for the continuous spinning room down to one with a capacity of 5,000 cu. ft. per min. for the dissolver room and caustic reclaiming tanks. Refrigerating units consist of Carbondale vertical compressors direct connected to Westinghouse synchronous motors. Industrial conditioning units were installed by Air & Refrigeration Corp. and are fitted with Johnson Service Co. controls; Clarage fans are driven by V-belted induction motors. Comfort units in the office were installed by Spohn Heating & Ventilating Co. The Buffalo Forge fans on these units use Rockwood pivoted motor drives with flat belts. Minneapolis-Honeywell electrical controls are used on the comfort air-conditioning units. In both industrial and comfort units all motors and other electrical equipment are Westinghouse. Valves are Chapman and Crane.

LIGHT AND POWER. With the exception of the office area the plant is windowless. Walls are of buff brick with salt-glazed brick on interior walls. Floors are of cement, asphalt, steel, and wood. Daylight enters through the 371,000 Owens-Illinois glass blocks used in the roof monitors and wall panels. This is supplemented with artificial lighting of various types to meet specific needs. Thus, in the spinning room directional and diffusing luminaires in combination light both the upper and lower parts of the machine. Angle reflectors give high illumination close to the work; and interiors of the machine have vapor-proof fixtures.



One of three 3,200-hp. boilers in power house; steam developed here drives three turbo-generators, which provide 15,000 kw. per hr. for operating the entire plant

In the power plant three Combustion Engineering Corp. boilers, each having a capacity of 90,000 lb. per hr., deliver steam through Superheater Co. superheaters at 650 lb. pressure and 750° F., to three 5000-kw. Westinghouse bleeder condensing turbines. The turbines connect directly to 6,250-k.v.a., 60-cycle, 11,000-volt generators. They bleed to process and to a deaerating heater at 15-lb. gage and exhaust at 1 lb. absolute to a 2,750-sq. ft. condenser.

Boilers are fired with pulverized coal. Each boiler has two pulverizers and one forced-draft and one induced-draft fan. Coal is brought by railroad cars either to storage or to a Link-Belt crusher; from the crusher the coal goes to a bucket elevator, to the bunker, and is weighed on Richardson Scales before going to the pulverizers. A cyclone-type dust separator on each boiler prevents contamination of air. Ash is handled by Prat-Daniel Co. pneumatic equipment. Combustion-control equipment includes Taylor flowmeters and steam pressure and temperature recorders, Hays draft gages, and Permutit CO_2 recorder.

A Cochrane deaerating heater floating on the 15-lb. steam line, receives water (directly, or through a surge well) from mill returns, water-treating system, and condenser condensate. Blowdown, with flash tank and two heat exchangers, is continuous.

A Sterling Engine Co. 500-hp. gasoline engine and Westinghouse 300-kw. generator provides an emergency power source, entirely independent of steam.

WATER TREATMENT. Water for steam and for process work flows by gravity through a 5,000-ft. conduit from Lake Erie to the water-treatment building adjacent to the power plant. It is lifted by three deep-well pumps and is split into two main parts—one going directly to the treating system, and the other first to the condenser as circulating water and then to treatment.

Division is controlled to give 105° F. process water summer and winter. Heat balance is practically perfect in winter. In summer, some excess of water must be run through the condenser, then wasted. Heated circulating water from 1,800 tons of ammonia-condensing capacity is also delivered to the water-treating system.

Primary water-treating units were installed by Hungerford & Terry, Inc.; in order these are: settling basin, gravity filters, pump, zeolite softeners, pump, storage pond. Water leaving the storage pond goes mainly to process. The hot-water storage pond, holding 1,500,000 gal., absorbs temporary unbalance in power and heat demands. Cold water for process is supplied to the mill through a separate treating system consisting of settling basin and gravity filters.

COMFORT AND SAFETY. In the design of the plant particular attention was paid to the safety and comfort of the 900 to 1,000 workers employed. For example, nine of the thirteen air-conditioning units were installed with comfort of workers the chief or only consideration. Scientific lighting insures good seeing conditions.

Toilets, wash rooms, and shower baths are fitted with the most up-to-date sanitary facilities. There is a completely equipped dispensary in charge of a doctor. In a well-appointed cafeteria served by an electric kitchen meals are supplied to employees at low prices.

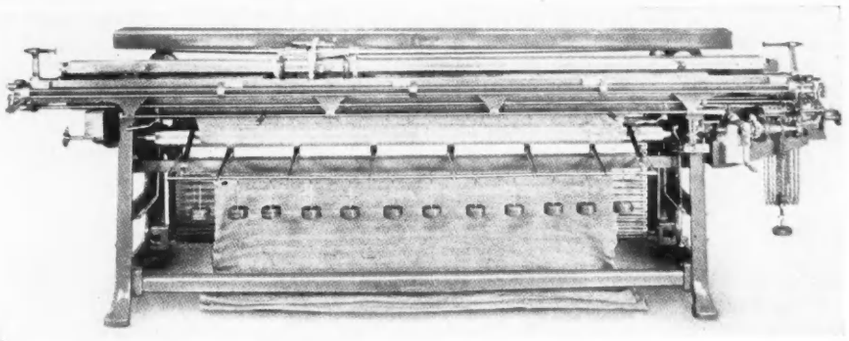
Wilbur Watson & Associates, Cleveland, were architects and engineers; Hunkin Conkey Construction Co., Cleveland, the general contractors.

TEXTILE EQUIPMENT NEWS

Double-Lock Knitting Machine

Double production is said to be possible on a double-lock links machine, announced by Queens Machine Corp., 280 Starr St., Brooklyn, N. Y. Extended snappers inserted in regular metal jacquard blades, control knitting. Bridges and latch openers have been eliminated, and positive latch opening movement is accomplished by specially constructed spring jacks. The machine is equipped with six special steel yarn carrier bars.

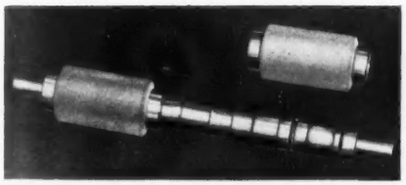
The carriage is equipped for single knitting. Design knitting is controlled each half course. The machine is no longer than a single-lock machine of similar gage and needle-bed length.



Double-Lock Knitting Machine (Queens)

Needle-Bearing Top Rolls

Equipment of their new Model J-3 controlled-draft roving frame with needle-bearing top rolls, has been announced by Saco-Lowell Shops, 60 Batterymach St., Boston. Construction of the bearing is such that small rollers are held in place within the hardened shell which fits over a hardened-steel arbor. The bearings are sealed against leakage of lubricant and infiltration of dust and lint. A special grease, instead of oil, is used as the lubricant for the needle bearing. Lubrication is said to be necessary only at infrequent intervals.



Needle-bearing top roll (Saco-Lowell)

The motion of the top rolls is synchronized with that of the bottom steel rolls. Thus there will be no irregular motion of the rolls to cause variations in the roving.

Shuttle Springs with Vibration Dampener

A new shuttle spring with a rubber vibration dampener has been brought out by Draper Corp., Hopedale, Mass. The rubber vibration dampener takes the place of the steel wedge formerly used in the shuttle spring. Advantages cited are almost complete elimination of shuttle spring breakage, less wear in the grooves of the spring, longer life of the spring, and a more firm holding of the bobbin.

This same company has introduced a bobbin which will not rock in the shuttle. It is said to minimize the troubles that come from a loosely held bobbin that points up, down, or to one side in the shuttle.

Spinning and Twisting Travelers

To meet problems brought about by the growth of spun rayon, twisting of filament rayon, and development of ring-spinning of worsted yarns, National Ring Traveler Co., Providence, R. I., has recently introduced a line of ellipse-rolled travelers. It is stated that the development of ellipse rolling has made it possible for the company to produce travelers in a much broader range of weights than was possible with round wire. Travelers of this type are said to be equally as applicable to machines with flange rings as to twisters.

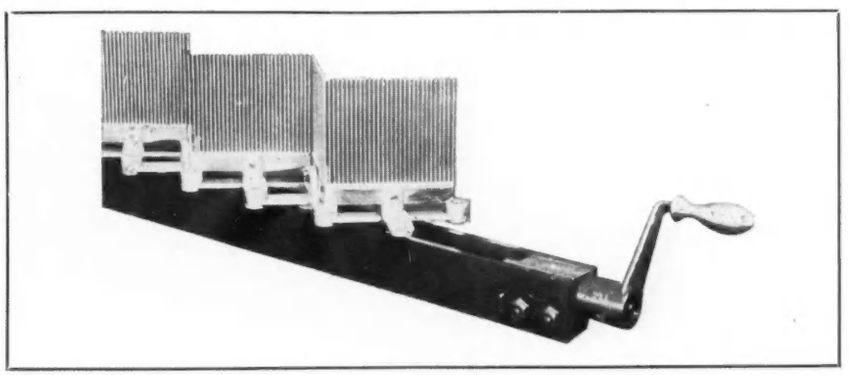
Travelers of the new type which are intended for spinning frames have flattened horns and are said to present no new problems as to ring complications.

Expansion Comb and Leasing Device

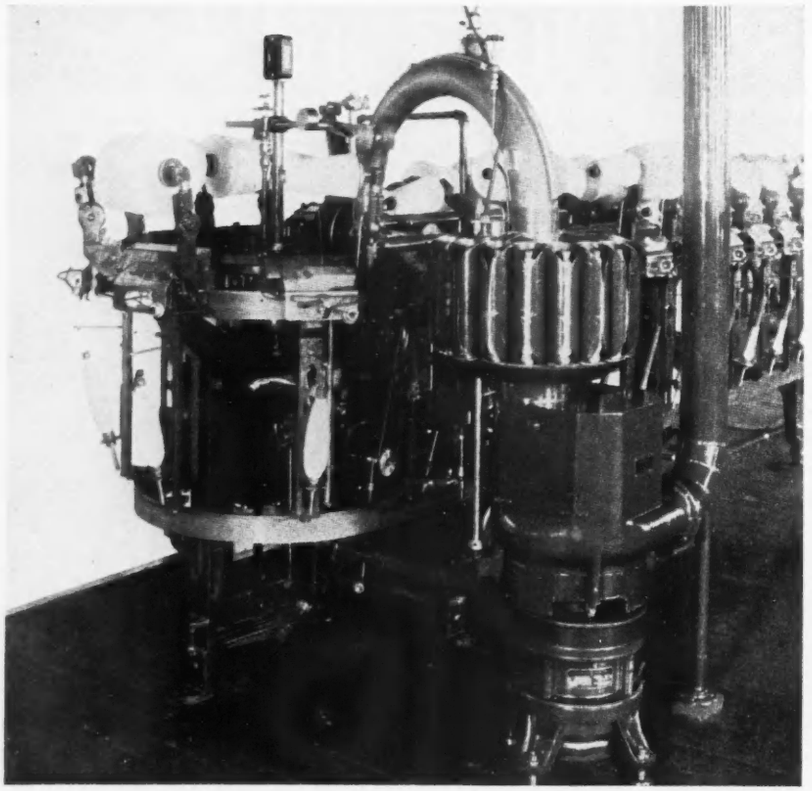
Two new products of Steel Heddle Mfg. Co., 2100 W. Allegheny Ave., Philadelphia, are an expansion comb and a leasing device for use in warp preparation.

Features of the expansion comb include an enlarged slot which makes possible pivoting of the free end of the comb, by means of setscrews, until a perfect fit is obtained at the joining point of sections; a locating pin, said to permit much faster and more accurate setting up of the comb; and a center post which, it is stated, increases the useful range of the comb by allowing greater expansion and contraction.

The leasing device, which is equipped with a multiple reed hook, is said to make possible taking of a perfect lease



Expansion comb (Steel Heddle)



Automatic head (Abbott)

in two minutes on rayon warps slashed on the cotton system. The multiple reed hook is capable of taking leases on sets of up to 14 section beams, and is available in types containing from 12 to 20 dents per in.

Improved Automatic Winder

An improvement featured in the automatic winder for knitting cones manufactured by Abbott Machine Co., Wilton, N. H., is an automatic head which permits an operator to handle 18 to 22 bobbins per min. according to an announcement by the manufacturers.

With the automatic head (shown in the accompanying illustration) the operator places the bobbin in a conveniently placed magazine and drops the end in a circular slot in the suction pipe. As each winding unit passes, the package is revolved over a suction slot. When the end is picked up, it is whipped over in a slit in the suction pipe to the knot-tier placed inside the hopper under the suction pipe. Now as each head passes the magazine, this rotates the space of one bobbin, bringing the bobbin end into the knotter. The knotter then ties the knot—the bobbin is dumped onto the peg and slack taken up by the action of the tension and a wind-up roll. Of these operations, the operator has had only to find the end of the bobbin and drop it in the hopper. If a package is up to size, an automatic device operates a signal for the operator. The package is at once doffed and an empty core started on. Ample time is permitted for this by the reserve bobbins in the hopper.

The operations performed by the automatic head are accomplished by a simple machine, standing in a fixed position. The knot-tying mechanism is a complete unit which can be removed and replaced by another unit in a few minutes. All parts are made interchangeable, so that replacements due to wear or accidental breakage can be quickly and cheaply made. The suction fan and roll used in end finding are said to be as simple as the ordinary vacuum cleaner.

Jacquard Knitting Machines

Jacquard Knitting Machine Co., Inc., G and Lycoming Sts., Philadelphia, have brought out a 28-in. jacquard knitting machine which has 24 feeds. It is a 10-cut machine, and each of its feeds is equipped with a standard 144-slot pattern wheel. The dial cap is cammed for twill or bird's-eye backed fabric. The machine is especially suitable for bathing suit fabrics.

This same company has announced a circular jacquard ribber equipped with a paper jacquard system. Sin the machine is equipped with jacquard pattern feeds and 10 pla fields, which can be used in vario combinations, it is possible to produc a wide range of patterns in two o three colors. The machine can be use for laying in rubber yarn, and i particularly adapted for production o bathing suit fabrics.

Loom Switch

Recently announced by Westing house Electric & Mfg. Co., East Pitts burgh, Pa., is a new loom switch. It

Loom switch (Westinghouse)

is equipped with double-break sliver contacts which eliminate flexible pig-tail connections; De-ion arc quenchers to prevent flash-overs and prolong the life of the contacts; a bi-metal relay which, it is said, affords accurate over-load protection regardless of the number of times it is called upon to protect the motor. Other advantages are quick-make and quick-break to prevent burning of the contacts; and on, off, or tripped positions which are clearly indicated by the toggle switch. The switch is said to be easy to install.

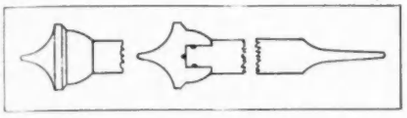
Granulated Cork Cots

Granulated cork cots of extremely fine granulation have been developed by Armstrong Cork Co., Lancaster Pa. In the making of these cots, carefully screened and cleaned granulated cork mixed with a binder is fed int an extrusion machine in small charges compressed for density, passed throug an electrically controlled heating zon for thorough baking, and then e

t ded in long, continuous lengths. A l of these operations are carried on i rooms maintained at constant tem- r rature to insure a more uniform c k. Use of finer cork produces a c ser-grained working surface. Also, it is said that better binders are used t produce tougher and more resilient c mposition of the cots.

Roving Skewer

E. H. Jacobs Mfg. Corp., Johnson City, Tenn., has developed a roving skewer in which the bond between the shaft and head is said to be permanent. The shaft has a circular

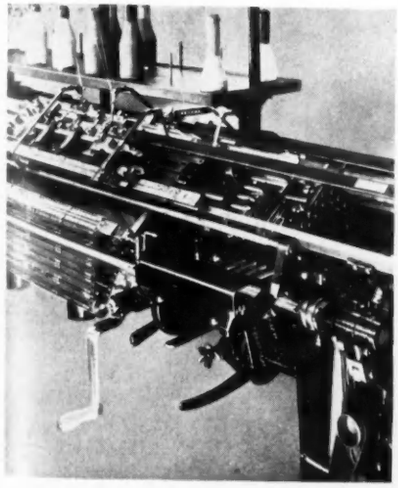


Roving skewer (Jacobs)

groove about 3/16 in. from the bottom. This groove is filled with high tensile strength glue and the shaft inserted into the head of the skewer which has a socket containing glue. The glue serves to lock the head to the shaft.

Double-Lock Jacquard Machine

A double-system fully automatic jacquard knitting machine has been



D ble-lock jacquard machine (Dubied)

a ounced by Dubied Machinery Co., 1 17 Beach St., New York. The ma- e has double-stitch transfer which c be effected at a high rate of pro- d ion and without blank rows. This i combined with automatic needle- t needle transfer from one needle bed t the other and vice versa. This stitch transfer can be effected in either direction of the carriage. Needles provided with a groove give rigid guidance and definite seizure of the stitch, so that transfer from needle to needle is positive. The needles are not fitted with springs.

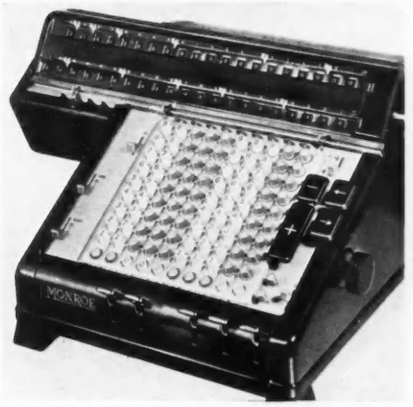
Size changes are made by press buttons fitted to a metallic disk or on a paper band placed on the disk and operated by it. Plugs for the jacquard cards are in the form of small steel spring plates which enable designs or modifications of designs to be made at the machine. The machine has a long carriage which allows direct feeding of the yarn to the needles and tends to prevent unnecessary tension on the yarn.

Synthetic Roll Covers

Synthetic roll covers known as Everlastic, have been announced by Roger W. Cutler, 141 Milk St., Boston. These roll covers, the basic ingredient of which is synthetic rubber, are said to be immune to the action of oils and to be non-oxidizing. They do not harden and lose their resiliency with age. The frictional properties of these covers, it is said, insure good drafting at all times.

Calculating Machine

A calculating machine especially adapted to cost and general accounting problems encountered in the textile industry has been developed by Monroe Calculating Machine Co., Inc., Orange, N. J. The machine, designated Monroe



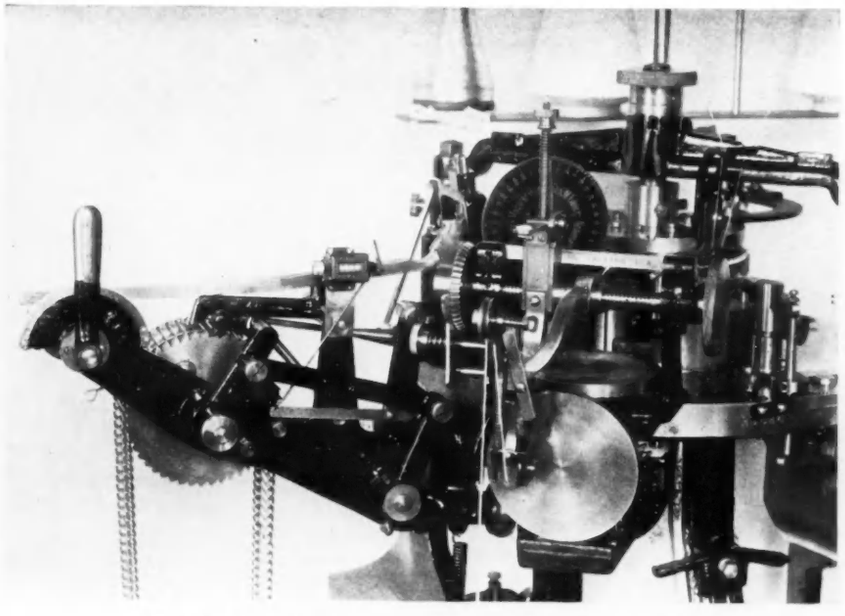
Adding-calculating machine (Monroe)

A-1, is so arranged that it automatically makes several short-cuts which are said to result in a 40% average reduction in a number of machine revolutions on the ordinary course of business figures, and a corresponding saving in time.

The same company has also a specially designed desk, for use in connection with its bookkeeping machines, which arranges all required material so that it is within easy reach of the operator.

Elastic Laying-in Attachment

An elastic laying-in attachment for circular knitting machines, invented by George E. W. Lindley, Sr., is being manufactured and sold by Fidelity Machine Co., 3908-18 Frankford Ave., Philadelphia. This attachment makes it possible to feed elastic yarn to the needle point at a definite tension. Fur-



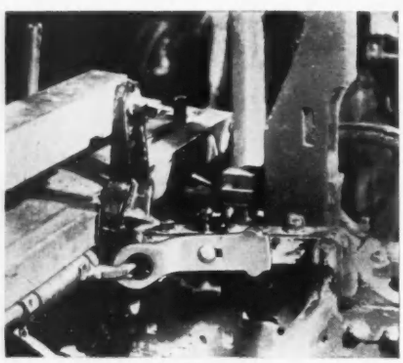
Double-disk elastic laying-in attachment (Fidelity)

thermore, by chain control it produces a fashioning of the fabric. The attachment is made in both double-disk and single-disk types.

Protector-Rod Oscillator for Looms

Pressure on the shuttle when being picked from the box is relieved by a new device known as a protector-rod oscillator, developed by J. E. McCarvey, P. O. Box 366, Griffin, Ga., and manufactured by West Point Foundry and Machine Co., West Point, Ga. There is no spring pressure on the protector rod, except when the lay moves forward from back center. The oscillator, through pressure on the protector rod, puts tension on the binders at the proper time to catch the shuttle as it enters the box. The device is of simple design and, when once set, stays in proper position. All bearing surfaces are chilled to prevent wear.

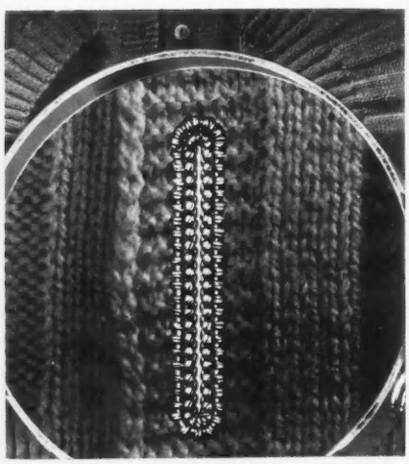
The protector-rod oscillator is said to save picker sticks and pickers, increase the life of binders and shuttles, and reduce maintenance cost of the loom through reducing operating power required.



Protector-rod oscillator (West Point Foundry)

Oval Buttonhole Machine

Reece Buttonhole Machine Co., 502 Harrison Ave., Boston, has developed a machine producing an oval buttonhole said to be particularly adaptable to sweaters which, in line with new trends, have narrow borders. A lateral feed is used which permits the making of buttonholes parallel to the border, but without any regard to its width. Proper alignment of holes is said to be assured, and the buttonholes can be produced in a range of lengths from $\frac{3}{8}$ in. to $\frac{3}{4}$ in., by increments of $\frac{1}{8}$ in.



Oval buttonhole (Reece)

Laboratory Cabinets

For small-scale tests, conditioning, and experimental work a laboratory-size, insulated, air-conditioned cabinet is being marketed by Tenney Engineering, Inc., Bloomfield, N. J. The cabinet is said to maintain precise temperatures throughout its entire interior within $\frac{1}{4}$° F. and to maintain a humidity of within $1\frac{1}{2}$% of that indicated on the controls. Heating and humidifying of the cabinet is by electricity, and all controls and air-circulation apparatus are also electrically operated.

Laboratory Cabinet (Tenney)

Positive air circulation is achieved by the use of a fan and 1/6-hp., 110-volt motor. Heat is supplied by an electric heater, which is automatically controlled by a thermostat. The humidifier is a small copper tank located at the bottom of the cabinet; when humidity is required, the spray nozzle automatically sprays warm water into the tank, where it is absorbed by the air. Operation of the nozzle is controlled by a humidistat mounted outside the cabinet. Over-all dimensions of the standard cabinet are 24 x 24 x 32 in.

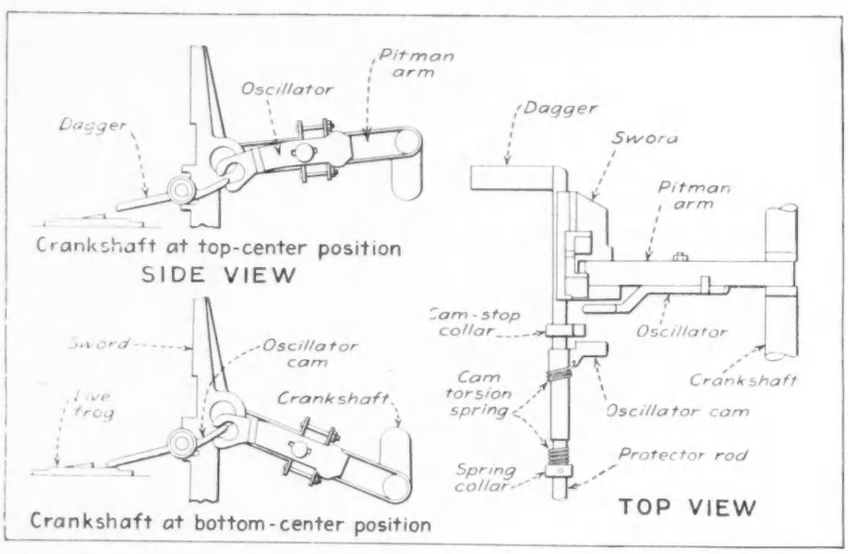


Illustration of operation of the protector-rod oscillator at top and bottom center positions of the crankshaft, with a top view of the assembly

Useful Accessories for Textile Mills

Propeller-Type Fan. Buffalo Forge Co., Buffalo, N. Y., has developed a new type of fan for installation where it is desirable to use a propeller-type fan, but where the motor must be outside the air stream. The fan is said to be particularly applicable in any installation where there is an excess of moisture, heat, dust, or corrosive fumes to be removed; or where it is desirable to have the motor outside a closed system.

Thermometer and Pressure Gage. Brown Instrument Co., Wayne & Roberts Aves., Philadelphia, have developed a new line of temperature and pressure recorders, indicators, and controllers; the instruments include thermometers indicating and recordin

mperatures of from —40° F. to 200° F., and indicating or recording ressure and vacuum gages for ranges om 6 lb. of water up to 2,500 lb. per q. in. and vacuum ranges of 10 in. of ercury and over.

Transmission Belts. Hewitt Rubber Corp., Buffalo, N. Y., is now manufacturing an all-Neoprene friction-surface transmission belt. The belt has a cotton-duck base with Neoprene impregnated between all plies; this is said to protect it against wear, ply separation and softening from oil at high temperatures.

Speed Reducer. Boston Gear Works, Inc., North Quincy, Mass., has recently developed a new straight-in-line, completely motorized reduction unit; it is availal le in five output speeds and with either ½ or ¼ hp. motor.

Check Valve. Armstrong Machine Works, Three Rivers, Mich., are introducing a line of check valves as accessories to their steam traps; these valves are of the internal type, with no outside joints to leak, and are made of stainless steel. The valves are available in sizes from ½ in. up to 2 in., and for traps in all pressures from 0 to 1,500 lb.

Motor Drive. Philadelphia Gear Works, Erie Ave. and G St., Philadelphia, has developed a new motor drive to provide protection for agitators, conveyors, or other equipment that might jam or become overloaded. The motor is said to shut off automatically when the load exceeds a predetermined value.

Blower. Hartzell Propeller Fan Co., Piqua, Ohio, has announced a new propeller-type fan blower, which has the motor located on top of the blower housing, entirely out of the air stream. It is stated the new device meets the demand for a propeller-type blower which can be used in moving air at high temperatures, or in which the presence of acids or other elements might damage the motor.

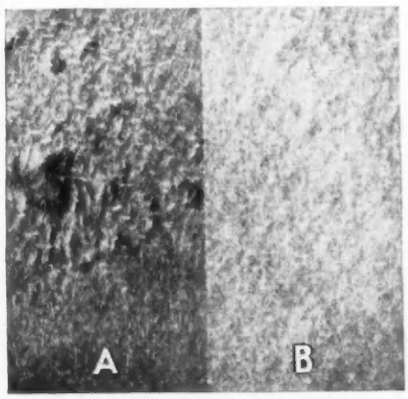
Vacuum Pumps. Recently announced by Gardner-Denver Co., Quincy, Ill., is a vacuum pump designated Type RXV. Pumps are furnished either in single- or two-stage types. It is stated that, while the pumps will produce high vacuua above 28 in. Hg. when required, the single-stage pumps are also suitable for low vacuua.

Smoke Control. A smoke control which operates by means of a photoelectric cell has been developed by Photoswitch Inc., Cambridge, Mass. The cell and light source are mounted on opposite sides of a flue or chimney, with the light beam projecting across the inside of the flue. A bell or light signal is located at any convenient point, and can be set so that the signal operates at any predetermined smoke density.

New Dyes and Chemicals

Mothproofing Compound

Development of a new mothproofing compound, known as Demotex, has been announced recently by Demotex, Inc., 21-03 41st Ave., Long Island City, N. Y. Demotex can be applied to all types of woolen and worsted materials,



Results of test made by United States Testing Co., Inc., to show resistance to attack by carpet beetles of untreated and Demotex treated blanket fabric

including upholstery fabrics, carpets, rugs, dress goods, suitings, overcoatings, blankets, knit goods, and knitting yarns. Materials treated with Demotex are said to be immune from attack by clothes moths, carpet beetles, etc., even after laundering or dry-cleaning. They are insurable against moth damage for a period of five years by one of the largest insurance companies.

The accompanying illustration shows two samples of blanket material which were tested for carpet-beetle resistance by the United States Testing Co., Inc. Samples were treated with Demotex and given either six dry cleanings or six washings. At the end of a 30-day test, the untreated sample, *A*, showed considerable fibers eaten; the treated sample, *B*, showed no evidence of attack.

Demotex is applied to blanket material by immersing the goods for about 10 sec. in a quetsch, prior to drying and napping, in a 1% solution at room temperature. Samples of upholstery material treated with Demotex and similarly tested suffered so little damage that they can be considered satisfactorily mothproof.

On knitting yarns Demotex can be applied in an acid dyebath. It can be applied to clothing fabrics by entrainment with steam in the process of shrinking. Strength of the treating solution can be controlled by a simple titration method. Amount of Demotex absorbed by the material can be determined quantitatively by volumetric analysis.

Chemically Demotex is described as a fluoro-silic-acid double salt. It is being manufactured for Demotex, Inc., by Lehn & Fink Products Corp., Bloomfield, N. J.

Sizing Compound

Development of a new warp-sizing compound has been announced recently by Penick & Ford, Ltd., Atlanta, Ga. This material, known as Douglas Spunray Gum, is said to have under certain conditions all of the viscosity characteristics of a standard thin-boiling starch and to afford the same weaving protection to yarns when used in the formula as does a thin-boiling starch. An unusual quality possessed by Douglas Spunray Gum, however, is the fact that it is readily soluble in and can be completely desized by soap and water.

Boil-Off Oil

Announcement of an improved boil-off oil is made by E. F. Houghton & Co., Philadelphia. This product, known as Firmol, is a highly concentrated compound. The outstanding advantage cited for the new product is that it has the ability to degum uniformly throughout the stockings, including the heavier heels, toes, and seams, without harming the lighter-weight portions of the hose, which will retain their natural elasticity. This is said to give better wearing qualities to the hosiery.

General Dyes

General Dyestuff Corp. announces the following new products: Palatine Fast Black GGN, a new acid dye for producing greenish black or dark green shades; it possesses excellent fastness to light; good fastness to water, washing, and rubbing; and very good fastness to hot pressing. Diazo Fast Bordeaux FBL, a new, homogeneous developed color; dyed, diazotized, and developed with Developer A, it yields bordeaux shades which are slightly purer and bluer than those from Diazo Fast Bordeaux BL; dyeings possess good fastness to water, washing, alkali, brightening, stoving, and rubbing. The product is said to possess very good dischargeability, solubility, and leveling ability.

New Publications

T. W. Mill Directory

TEXTILE WORLD MILL DIRECTORY for 1939; published by Textile World publications, 330 West 42nd St., New York; $3.00.

The new edition of this annual directory is completely up to date, incorporating in its 480 pages the hundreds of changes which have taken place in the textile industry throughout the year.

Like its predecessors, it retains the simplified alphabetical arrangement of the mills by States, cities and towns, along with complete listing of mill information.

Again it has been the aim of the publishers to compile for the textile industry, a mill directory that will be of maximum value to anyone interested in contacting the men and plants that make up that industry.

A Gaston County History

HISTORY OF GASTON COUNTY, by Minnie Stowe Puett; Belmont, N. C.; $3.00.

This book, privately printed, is one of many county units which, eventually, will be tied into a whole by the Historical Commission of North Carolina in its movement to preserve State history. Mrs. Puett, who has for many years occupied the position of Historian of Gaston County, certainly knows her stuff and the volume amply testifies to the tedious research work necessary in its preparation.

Certain limitations are there, as for instance, the meager mention which is given to the spectacular growth of Gaston County to rank as the foremost industrial county in the South, compared to at least 60 pages devoted to the Battle of Kings Mountain. But it is a good book of its sort; it fills a long empty space and it will have particular appeal to those interested in the family and historical background of the people who founded Gaston's textile industry and who still predominate in its management.

Underwear Statistics

BUSINESS BUILDING FACTS FOR THE UNDERWEAR AND ALLIED PRODUCTS INDUSTRY—STATISTICAL REVISION; Underwear Institute, New York; $1.00.

"Business Building Facts," first printed in November 1936 and revised in 1937, has proved to be a factual encyclopedia of the underwear industry. The Institute now plans a regular revision of the statistics in that work, which are of current nature. Volume under review completes the statistical data through the year 1938.

Economics for Engineers

APPLIED ECONOMICS FOR ENGINEERS; by Bernard Lester; John Wiley & Sons, Inc.; New York; $4.00.

This book, written in a clear, easy-to-understand style, is based upon conditions and problems which an engineer is likely to encounter in practice. Its purpose is to provide engineering students with an introduction to the practical application of economics.

Included in the book are chapters on human and public relations in industry, industrial organization, the functions of organized selling, price and pricing policies, economic studies. Also, there are numerous quotations from current technical and industrial journals. Though the book is primarily a textbook for engineering students, it should interest recent technical graduates and engineers engaged in strictly technical work.

Reference Data on Rayon

RAYON AND STAPLE FIBER HANDBOOK, by Herbert R. Mauersberger and E. W. K. Schwarz; third edition; Rayon Handbook Co., 303 Fifth Ave., New York, $4.50.

The third edition of this handbook contains two new sections—one on the manufacture of rayon staple fiber and spun rayon yarns; the other, a glossary of rayon terms. Other chapters have been revised and enlarged. As was true of the earlier editions, the new edition is a valuable reference book on the production of rayon yarns and fabrics.

Meeting New Laws

ADJUSTING YOUR BUSINESS TO THE NEW LEGISLATION; Tax Research Institute of America, New York; 1065 pages; $12.85 ($10.00 to members of Institute).

This latest handbook of the Tax Research Institute of America shows how business men can avoid possible trouble and expense by knowing in advance, what steps to take with regard to each one of the Federal and State laws that now regulate wages, hours, labor standards, selling policies, prices, discounts, and other business practices. Among the "business control" laws explained in the handbook are the Wage-Hour Law, Labor Relations Act, Pu Food and Drug Act, Federal Trad Commission Act, Robinson-Patman Ac and other regulatory measures. Specifi recommendations are offered on th steps that should be taken in order t comply with each law most convenientl and most economically. The handbook a looseleaf volume, is a practical form of real help to the business man facing today's legislative puzzle.

Annual Convention ACMA

PROCEEDINGS OF 43RD ANNUAL CONVENTION; American Cotton Manufacturers Association, Charlotte, N. C.

This annual volume contains the addresses and reports presented at the convention in New Orleans; as well as the complete roster of members.

Georgia's Annual Meeting

REPORT of the 39th Annual Meeting of the Cotton Manufacturers Association of Georgia; Atlanta, Ga.

This report contains the complete record of addresses and other transactions at the annual meeting at Sea Island, Ga, May 25-26. It is enlivened with a number of action photographs.

Hosiery Tests

METHOD OF TESTING HOSIERY; Government Printing Office, Washington, D. C. 15c.

Included in this booklet on methods of testing hosiery prepared at the National Bureau of Standards are given directions for examination of hosiery for type, workmanship, dimensions, construction, physical properties, color fastness, yarn count, etc. The methods described are those used by the National Association of Hosiery Manufacturers and are published for the information of manufacturers, commercial laboratories, home economics teachers, and distributors of hosiery.

And Now a Book of Verse

SONGS OF THE WORLD'S FAIR AND OTHER POEMS by John Black; Bruce Humphries, Inc., Boston, Mass.

This timely volume by John Black, at one time assistant editor of TEXTILE WORLD and now with J. M. Mathes, Inc., New York, contains the poem "Man Is Rayon," quoted on page 84 of the June issue of this paper in conjunction with eight pages of World's Fair pictures. Other poems touch on various physical, social and spiritual aspects of the Fa , and there is a group of subjective poe reflecting personal experiences. This Mr. Black's second book of verse.

For year round business

Teca Blends

Seasons come and seasons go, but the demand for Teca Blends mounts steadily, month after month. That's because Teca, Eastman's crimped acetate rayon, is a year-round fiber, mixing with silk, wool, viscose rayon or cotton to produce a variety of textures never before possible. Whatever the weave construction, Teca means resilience — the higher the percentage of Teca, the more resilience, the greater resistance to sagging and crushing. Because each Teca fiber acts as a tiny spring, yielding to pressure and, when released, recovering its original shape instantly. Feature Teca Blends for immediate turnover and for stabilized year-round profits.

For further information consult A. M. Tenney Associates, 10 East 40th Street, New York City. Sales representatives for Tennessee Eastman Corporation, Kingsport, Tennessee, subsidiary of the Eastman Kodak Company.

Eastman

ACETATE RAYON

News of Suppliers

U. S. Bobbin & Shuttle Co. has appointed D. D. Ragan as South Carolina sales representative, succeeding Mat Ousley, who has been transferred to Georgia.

Monsanto Chemical Co., Plastics Division, Springfield, Mass., has promoted Fred G. Gronemeyer to plant manager. He joined Monsanto in 1929 and was recently resident engineer for the Springfield plastics plant.

Borne Scrymser Co. has added Willard E. Smith, of New Brunswick, N. J., to the staff of its Elizabeth, N. J. laboratories. Under the direction of Dr. E. H. Schmidt, Mr. Smith will assist in the development of Borne Scrymser's textile specialties and condensation products for the wool, cotton and rayon industries.

Quaker Chemical Products Corp., Conshohocken, Pa., announces that J. V. McCombs has recently joined its technical sales and service staff to serve the southern trade in Georgia and South Carolina. Mr. McCombs was for seven years superintendent at the Martel Mills Corp. plants in Atlanta, Ga., Chester, Pa., and North Adams, Mass.; he was with P. H. Hanes Knitting Co., of Winston-Salem, N. C., and with Union-Buffalo Mills Co., Union, S. C.; for nearly eight years he was with Randolph Mills, Franklinville, N. C., as general superintendent of bleaching, dyeing and finishing division of mills No. 1 and No. 2.

D. W. Haering & Co., water consultants, Chicago, Ill., have removed their company offices to their plant at 2308 S. Winchester Ave., Chicago, where adequate space to accommodate an increased office and executive personnel has been provided. The laboratory will be retained at 3408 W. Monroe St., where the previous office quarters are being altered to provide new and larger library facilities for the research staff.

National Adhesives Corp., New York, last month changed its name to National Starch Products, Inc., in view of the fact that the majority of National's glues and gums are manufactured from starches processed in its own refinery at Dunellen, N. J., and that the company has become an important factor in the manufacture and processing of starches for foods, confectionery, textiles, and paper, as well as in the production of lacquers, thermoplastics, and similar materials. The present National Adhesives Corp., however, will operate as a division of National Starch Products, Inc., and will continue to manufacture adhesives, lacquers, and allied products. The company has recently purchased Piel Bros. Starch Co., Indianapolis, which will also be operated as a division of National Starch Products, Inc.

Hooker Electrochemical Co. has transferred its administrative, sales, and accounting headquarters and personnel to Niagara Falls, N. Y. A local New York office will be maintained at 60 East 42nd St.

Bristol Co., Waterbury, Conn., will exhibit its control instruments at the Iron and Steel Exposition in Pittsburgh, Pa., Sept. 26 to 29, 1939, and at the Metals Exposition in Chicago, Oct. 23 to 27.

Commercial Investment Trust Co. reports net earnings of $7,460,677 for first six months of 1939 compared with $7,866,166 for first six months of 1938. The six months volume of accounts receivable of factoring subsidiaries were $116,969,533 in 1939 against $99,054,208 in 1938.

Piedmont Reed & Sales Co., Inc., Greenville, S. C., has been established by H. E. Littlejohn as president and secretary, and H. C. Beattie as vice-president and treasurer.

Quaker City Chemical Co., Philadelphia, has appointed J. G. Morgan, of Rochelle, Ill., western representative. He will work with the southern plant of the company at Knoxville, Tenn. Mr. Morgan has lately been associated with his brother E. W. Morgan in the Morgan Dyeing & Bleaching Co.

Packaging Institute, Inc., New York, has invited companies in the packaging field to send representatives to its first annual meeting, to be held Oct. 19 and 20, at Edgewater Beach Hotel, Chicago. The Institute, which now comprises packaging production, machinery and supplies divisions, will consider the formation of a fourth, or designers, division. It concerns itself only with the technical aspects of these matters.

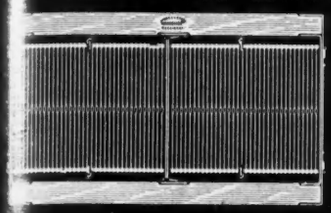
Hygrade Sylvania Corp., Lamp Division, Salem, Mass., has announced price reductions on Hygrade fluorescent lamps and Hygrade incandescent lamps effective on September 1. On fluorescent lamps reductions vary from 5 to 25¢. On incandescent lamps reductions of 5 to 30¢ apply mainly to inside silver bowl lamps and reflector lamps.

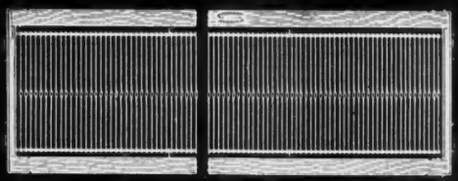
Allis-Chalmers Mfg. Co., Milwaukee, Wis., has established new branch offices as follows: in Louisville, Ky., with W. E. Kercheval in charge; in LaPorte, Ind., with B. L. Margeson, in charge. J. J.

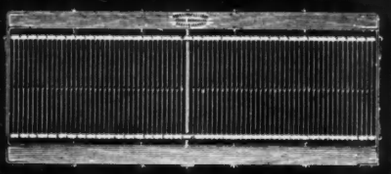
A 30-Year Man—W. C. Fork, superintendent of the hot rolling mills of Acme Steel Co., Chicago, Ill., receives an emblem denoting 30 years of continuous service with the company from the hands of R. H. Norton, president, who himself has been with the company 35 years. Over 40% of Acme's 2,300 employees have records of 10 years or more. The company has made a profit in each of its 60 years of existence and has never omitted a common stock dividend. The executives recognize that exceptional employee cooperation has made this record possible.

Swift Mfg Co., Columbus, Ga., had the problem of moving a 50,000-gal. fire protection tank. C. W. and Edgar Sullivan, house movers of Atlanta, Ga., were called in. Picture shows tank being slowly pulled into its new location by a 2-ton truck in low gear. Directly under it is a 160,000-gal. service standpipe. In nine days the moving operation—across the street and 600 ft. to new site—was complete. There was a considerable saving over dismantling and re-erecting the tank.

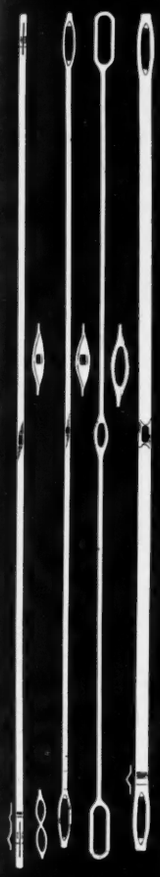
FRAMES



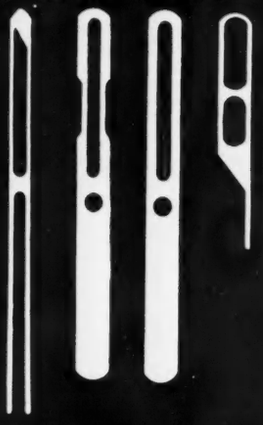




FLAT STEEL HEDDLES



DROP WIRES



He profits most who wisely invests in the best of equipment!

SUPER-smooth, flawless finish

TIME-proved superior performance

ECONOMY that means greater profits

HIGHEST-class workmanship

EXCELLENT return on investment

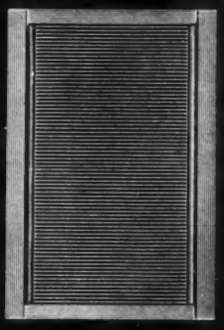
DURABILITY in high speed service

CONSTRUCTIVE technical advice

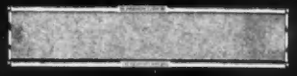
ORIGINALITY in design

Any of our field representatives (all practical mill men) will gladly give you the facts.

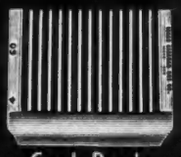
REEDS



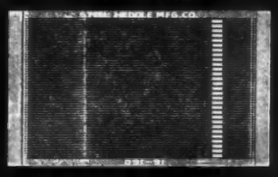
All-Metal



Pitch Band Reed



Comb Reeds



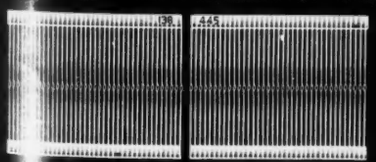
Special Reeds

Steel Heddle Mfg. Co.

"Stehedco" HEDDLES REEDS · FRAMES AND HARNESS ACCESSORIES

2100 W. Allegheny Ave., Philadelphia, Pa.

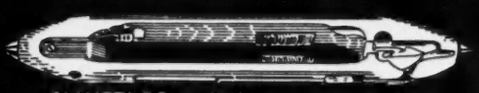
BRANCH OFFICES ALL OVER THE WORLD



ATLANTA TWINE HARNESS

QUALITY LOOM HARNESS EQUIPMENT

Stehedco



SHUTTLES made by our subsidiary — Southern Shuttles, Inc.

Tempered and Polished Steel Pile Gauges

Breutzman succeeds Mr. Margeson at Rockford, Ill. A. B. Frost is in charge at New Haven, Conn., office succeeding E. D. Hill, who resigned due to illness.

F. W. Warrington Co., Charlotte, N. C., has been organized by F. W. Warrington for the sale of textile machinery, and now represents the

F. W. Warrington, who has organized his own company at Charlotte, N. C., to represent textile machinery manufacturers.

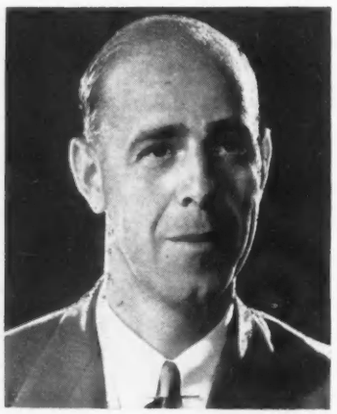
Fletcher Works (rayon and silk throwing machinery) and the Philadelphia Drying Machinery Co. (drying equipment including tenter housings), both of Philadelphia. Mr. Warrington is a graduate of N. C. State Textile School, and, after service in mills, joined W. A. Kennedy Co. in 1928. He was recently vice-president and sales manager for that company and also WAK, Inc.

Union Carbide & Carbon Corp., New York, by vote of its directors, approved an agreement to acquire all the assets of the **Bakelite Corp.,** New York. The former is producer of chemical raw materials and the latter a user of chemicals in its production of thermosetting plastics principally of phenolic types. Coordination of technical knowledge and research of these two companies is counted on to develop new plastics and new uses for them. Carbide also produces vinyl resins, used among other things, for manufacture of the synthetic yarn Vinyon.

Propeller Fan Manufacturers Association, Detroit, Mich., held a meeting there on Sept. 12. The association was recently organized by makers of fans for heating, cooling, drying, ventilating, pneumatic conveying, dust exhaust and mechanical draft for power plants. The association members may use a "Certified Rating" label, as that body has adopted a standard test code to gauge fan performance. M. W. Bauer, of Aerovent Fan Co., is president, A. R. Stephen of De Bothezat Ventilating Equipment Co., is vice-president, and V. C. Shetler is secretary-treasurer. Charter members include the two companies just named and Air Controls, Inc., American Blower Corp., American Coolair Corp., Autovent Fan & Blower Co., Buffalo Forge Co., Chelsea Fan & Blower Co., Hartzell Industries, Inc., Ilg Electric Ventilating Co., International Engineering, Inc., Marathon Electric Mfg. Corp., Peerless Electric Mfg. Co., Propellair, Inc., and Viking Air Conditioning Corp.

Wilkening Mfg. Co., Philadelphia, manufacturer of Pedrick Heat-Shaped piston rings, has appointed W. H. Spencer as manager of its foundry division. He was lately technical director of Sealed Power Corp., Muskegon, Mich.

H. E. Beck has become traveling representative for Carter Traveler Co. and Mill Devices Co. His territory will include North Carolina, Virginia and Tennessee.



Leslie S. Gillette, now executive vice-president of the Hazard Advertising Corp., New York, as reported in these columns last month.

Arnold, Hoffman and Co., Inc., Providence, R. I., has appointed Chester L. Eddy assistant general sales manager, with headquarters at Greenville, S. C. Mr. Eddy was until recently assistant manager and superintendent at Renfrew Bleachery Plant, Brandon Corp., Travellers Rest, S. C.

Apex Chemical Co., Inc., Elizabethport, N. J., has added Murry L. Hurwitz, recent graduate of the Chemical Engineering Dept. of Columbia University, to its research staff.

Chiksan Tool Co., Fullerton, Calif., has appointed the Crane Co. as national distributor for its industrial products incorporating Chiksan swing joints. It will at the same time maintain its staff of sales representatives in principal cities as in the past.

Norlander Machine Co., Gastonia, N. C., has moved into its new building at Victory Station, from the former location at 213 West Long Ave. The new building has about twice the space of the former location.

Hercules Powder Co., Wilmington, Del., has named Luke H. Sperry, former manager of its chemical cotton plant, as chief engineer of the company, succeeding George E. Ramey, who retired Aug. 1. Dr. Emil Ott has been appointed as the company's director of research.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., reports orders booked in first half of 1939 at $104,538,863, to be 36% greater than the $76,713,806 booked in first six months of 1938. Net income for the half year showed an increase of 41%: $6,338,787 against $4,500,602. On a 12 months' basis, net income was $10,890,958 to June 30, 1939.

Commercial Credit Co., Baltimore, reports gross volume of all receivables acquired for the six months ended June 30, 1939, was $342,260,101.80, compared with $268,967,914.55 for the six months' period of 1938. Net income for the six months' period of 1939 was $5,803,696.37, compared with $8,119,002.67 for the six months' period of 1938.

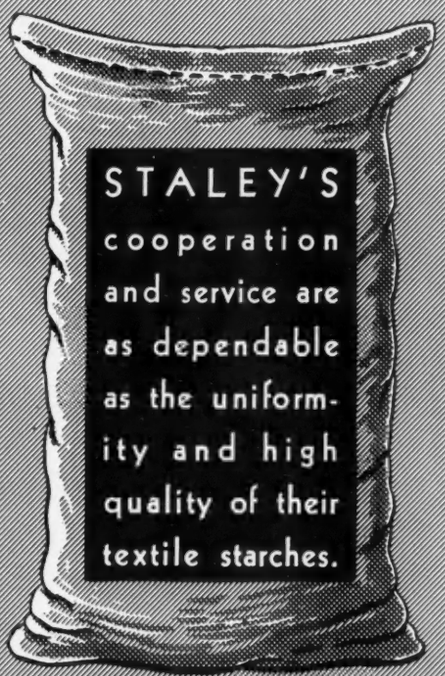
Link-Belt Co., Chicago, has appointed L. M. Bang as district sales manager in the central-western stoker division.

Stewart-Warner Corp., Chicago, has appointed Maurice G. McCall to direct the newly-formed technical department of the accessory sales division.

Robert Gair Co., New York, has elected T. Raymond Pierce as a vice-president, and Wilbur F. Howell as secretary.

Richard P. Brown, who was recently appointed by Governor Arthur H. James to be the first Secretary of the new Department of Commerce of Pennsylvania, was formerly president and is now chairman of the board of the Brown Instrument Co., Philadelphia, and vice-president of Minneapolis-Honeywell Regulator Co., Minneapolis.

STALEY'S •TEXTILE• STARCHES



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Quality Advertised by North American
Quality Protected by Precision Winding

North American Rayon Corporation, which advertises quality in leading fashion magazines, protects the original quality of all its coned yarn by winding on No. 50 Winders and shipping on Universal Cones.

For years Leesona-Built Winders have kept pace with the rayon industry's demand for perfection — today they are used by all manufacturers to wind cones of inspected yarn that will withstand abuse in handling.

More than 90% of all Rayon and Silk Yarn on Cones is Precise-Wound on Leesona-Built Winders

LEESONA

UNIVERSAL WINDING COMPANY ★ PROVIDENCE R. I.

PHILADELPHIA · UTICA · BOSTON · CHARLOTTE · ATLANTA

THE OVERSEERS' CORNER

TIME-CLOCKS AND ARGUMENTS

A Pete & Bill Discussion

"Well, I guess we'll all have to go out by the main door tonight," said Bill biting viciously into his sandwich, as he and Pete settled comfortably for a noon-hour visit.

"Yeah," said Pete, "they've got the time-clock all set up and ready for some punching."

"Well, I don't like it," Bill chewed on reflectively "and I'll bet the help don't like it either. Lots rather have that money spent where it would do more good. We don't have any trouble keeping time as it is."

"Only reason the help kick is because they don't understand it," Pete argued. "I never punched one yet, but it keeps a true record and it ought to save a lot of arguments. You can't rub out those holes and put in a different set of figures like some of those sore-heads up at the office accuse us of doing."

"That part's all right, I guess," Bill admitted, "but what's the use of putting in gadgets the help don't like when we are getting along pretty well as it is?"

"There's just one thing, Bill," Pete lowered his voice and spoke seriously, "this clock record protects the mill and it protects us, when those NLRB boys come nosing around. It protects the worker, too."

"My time-keepers say they'd rather have a fellow's record in their pocket when they're talking to him. Gives them better control of the situation, as it were."

"I know what you mean," Pete continued patiently, "but don't you think after they've used it a little while that all the boys will take a kind of pride in keeping their own time, and be proud of making their cards show a perfect record?"

Will time-clocks end time disputes?

Letters From Readers

Selection of Workers

Editor, Overseers' Corner:

The cost of hiring and breaking in new workers can be kept down by selecting those who are honest and loyal and who you think would give permanent satisfaction.

The strength of an organization hinges on everyone in it being honest and loyal. A dishonest or disloyal member is a disintegrating force which will in time undermine the stability of the organization. Habitual disloyalty can often be detected by the way in which an applicant will criticize his former employer. In most cases dishonesty is discovered sooner or later.

Another way of cutting cost is to recommend only those who are reliable and efficient to do the work.

The reliability of an organization is the sum total of the reliability of its management and workers. Every time an unreliable worker or executive is employed, an inroad is made upon the strength and safety of the organization.

Workers without reliability are usually workers without a definite purpose; they come without serious thought and leave with ease and flippancy; they are a good class to avoid.

Dewey Cates
(High Point, N. C.)

A New Responsibility

"Helping Displaced Labor," Pete & Bill, August, 1939

Editor, Overseers' Corner:

I believe that helping displaced labor get located is one of those jobs which we as overseers are not required to do, but which is definitely a part of our job.

It is a problem that has come upon us through changing times, labor saving machinery and general unemployment. Years ago we were more interested in hiring the other fellow's help than in finding a place for some one out of a job, but such is not the case today.

If you have ever been out of a job, you know what a good feeling it is to know that some one is trying to help you find another one.

I think it helps build morale when workers know that their boss or the man that used to be their boss, is interested in seeing them placed on another job when they have been displaced through no fault of their own.

I thoroughly agree with Pete that it is definitely our responsibility to help displaced operatives get located on jobs which they are capable of handling.

W. D.
(South Carolina)

The Hard Life of an Overseer's Son

"Kinfolks and Angels," Pete & Bill, June, 1939

Editor, Overseers' Corner:

I am a spinning doffer (I hope), having been in the mill some seven years. Started sweeping, as most boys do in the spinning room, and wandered into various jobs such as working around the quill machines, piloting an electric dummy which hauled filling from the spinning mill to the weave mill, laying up roving, and, finally, working as size-clerk and time keeper. Did a couple of weeks with a Barber-Colman man installing some automatic spoolers, and wound up doffing.

And, brother, I'm here to state, using Bill's own words, the old man had "grown him a set of wings," or else the eye that was looking out for the family interest must have gotten some lint in it.

Nothing I have ever done satisfied him. The more I did the more he wanted done. We did three or four months on a Government order of about 2,000,000 yd., and I got a raking over for every yard. The old man was running three

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York.

shifts in high gear with his hell raising, and 99% of it was directed at me. He convinced every hand in the spinning room that I was a thoroughbred idiot. I did everything a good doffer shouldn't do, but I noticed there was considerable less bad work.

As Mark Twain once wrote, "When I was a lad of fourteen it was pitiful how stupid the old man was, and when I was twenty-one it was surprising how much he had learned in the last seven years." Maybe I'll learn some day, but the old man left here and took a job further south. I'm still doffing osnaburg up here for a fellow that finds almost as many faults as the old man. I said "almost."

"Overseer's Son" (Georgia)

Discipline for Drunkenness

"The Intoxicated Worker."
Pete & Bill, May, 1939

Editor, Overseers' Corner:

The habitual drunkard, some may pity; but if a man cannot hold his own and recover from a bender before time to report for duty, his dismissal is well in line if this practice is followed regularly. One offense is sufficient for a warning, the second for a week's layoff, a third offense for a month's layoff on good behaviour, but a fourth for FINAL discharge.

To replace a good man takes time and money, so a bit of tolerance in this plan is often most economical. This manner of discipline will, however, bring the majority into line. Energetic, law-abiding, family-respecting, and living-within-their-incomes workmen are seldom found within the ranks of "sots."

F. L. Byrd (South Carolina)

No "False Front" for Visitors

"Visitors in the Mill,"
Pete & Bill, March, 1939

Editor, Overseers' Corner:

If the super wants to send or bring visitors into the mill or your department, that is well in order; but one of the most vile and deceiving practices I know is to send a messenger or a phone call to "clean up everything possible, for company is coming through." One overseer I know invariably answers these calls to his superintendent—"Bring the company on in, I am ready for them now."

Visitors in the mills, if escorted by overseers or their subordinates, many times will offer ideas that are worth hearing. But by all means, regardless of what impressions may be gained, don't doctor up your appearance or that of your mill. You are not preparing your face with "war paint" for a date in the evening! Be yourself and let folks see you as you are.

Lamar Fogel
(South Carolina)

Show Safety Films

Officials of the Fieldale and Spray (N.C.) plants of Marshall Field & Co. arranged that all employees have an opportunity to see two outstanding safety pictures which were secured from the North Carolina Industrial Commission. Arrangements were made with theaters in Spray, Leaksville and Draper for showing the pictures from July 24 to Aug. 1, and a schedule was worked out which will give every employee in the mills an opportunity to see these safety educational films.

Overseers' Practical Helps

Storing Rubber Belts

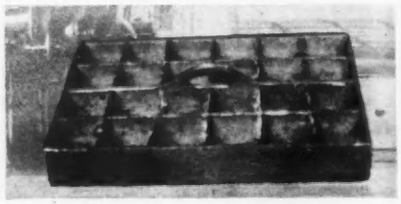
Rubber belts which are out of use should, if possible, be removed from their pulleys and stored in a cool, dark place in which the temperature never exceeds 70° F. If the belt cannot be removed, the tension should be taken from it and it should then be treated with a solution containing 1 qt. shellac, I pt. alcohol, 1½ pt. household ammonia, and 3 qt. water. This solution should be applied to the belt with a brush, the whole belt being given a good coating, particularly any cut or exposed edges.

This will largely prevent deterioration of the rubber, which so often spoils rubber or rubber-composition articles. The solution can with advantage be applied to any rubber or rubber-composition article, and has considerable preventive action.—W. G. Warner.

Drawing Sliver Sizing Receptacle

To save innumerable steps in making sizing tests of drawing sliver, the writer devised the compartment carrier basket shown in the accompanying illustration for keeping every frame and its work separated from that of adjacent frames.

The receptacle can be built by any carpenter in a short time. A coat of shellac will prevent absorption of moisture, as well as giving smooth finish that prevents fibers from adhering to its sides from time to time and thus creating an untidy condition. The handle in the middle portion is all one piece made onto the middle cross partition. Mark the number of one frame on the bottom of each compartment. This can be done with a steel stencil or number glued to the base. As will be seen from the illustration this box has 24 compartments. However, this is not necessary, as the number of machines that you have in your plant is the deciding factor. It is desirable to have the box contain a number of compartments that divides evenly into a square or convenient rectangular shape.



Drawing sliver sizing receptacle

With this receptacle, it is possible to have every delivery sized in the same rotation, and thus be able to spot any delivery that shows up repeatedly either heavy or light.—F. L. Byrd, (*S. C.*).

Piece-Goods Unrolling Device

For examining short lengths at the ends of rolls of piece goods I have found the simple device described below quite handy. Two rollers are mounted on a suitable base of sufficient width to accommodate the roll. The roll of fabric is set on the rolls and pulled out as required for examination.

The rolls keep the fabric in place and the rollers rotate, making unrolling easy.—J. Murphy, (*Ohio*).

Spindle Steps from Hardwood

Some years ago I went to a new job. It so happened that the card room was always a little behind the spinning. Among other things I noticed that there were two dead spindles on a pair of roving frames. This make of frame had the holder as part of the rail, and inquiry brought to light that the spindle-step holders were broken off.

These two spindles running steady, would help production a little, so I inquired why no new step holders had been ordered. I was told that the com-

pany did not want to buy any spare parts unless absolutely necessary, as they intended to discard the frames.

So I had the fixer get me the height from the top of the step to the floor. I then had the carpenter shop cut me a block of hard wood with two corner holes drilled for lag screws and a hole in the center for step-cup. We lined the block up with bolster and spindle, screwed it to the floor, put oil in the cup and started up our spindles.

They were still running like that 3 years later when I left.—R. J. F.

Filling Doffs on Worsted Looms

On older model worsted looms, a high percentage of filling breaks occurs on the doff of the filling bobbins due to the fact that there is a greater amount of tension placed upon the yarn at this time. Particularly is this so of a fine-yarn job, or on one using other than high grade yarns. The writer has found that if a light coil spring about 3 in. long and 1½ in. wide is suspended from the battery arm, taking the place of the usual capstan or other device, filling breaks on the doff will be reduced considerably. The purpose of the spring, the bottom coil of which the filling passes over, is to allow the tension to be reduced, as it (the spring) gives just enough to prevent breaking of the pick. This spring is easily attached to the battery-arm by means of a small screw.—Nils E. Hollman (*R. I.*).

Slack Decoration Ends

When weaving currently popular woolen and worsted styles calling for a considerable amount of silk or rayon decoration yarns, trouble is frequently encountered due to looms knocking off because of drop wires which ride on silk or rayon ends. On investigation it will usually be found that the troublesome yarns have different tensions in opposite sheds. For example, when the end is up it may be slack; and when it is down, too tight. This results in stretching the end so much that it may allow the wire to drop when the end is up.

This condition is due to the harnesses traveling farther down than they do up. An easy way to equalize the up and down sheds is to stretch a string from top of warp roll to top of beam roll (or sand roll, as the case may be) passing it through the reed and heddles. Using this string as a center line lower the warp roll and drop-wire rods until the center line just halves the shed.—O. J. D. (*R. I.*).

Making Fancy Warps

Systematic procedure for slashing and drawing-in warps and laying-out box chain

By J. S. WULFMAN

IN THE MAY, 1939, issue Mr. Wulfman described a procedure for laying-out a pattern and putting yarn on section beams in making fancy warps. He now explains a systematic procedure for slashing and drawing-in and discusses the laying-out of the box chain.

A GOOD SYSTEM for making fancy warps necessarily requires that the yarn be placed on the section beams properly. However, it entails more than just this—the warp must be slashed and drawn-in correctly. Furthermore, before the cloth can be woven, the box chain must be laid out for the filling pattern.

With the set on section beams it is brought to the slasher room and the beams are put in the creel at the back of the slasher, so that the yarn reels off the back beam from the top and runs under the middle beam from which the yarn reels off the bottom, then over the front beam from which the yarn reels off the top. The pattern beam should be placed in the middle, so that the bank of yarn will come off above the banks of yarn from the other two beams. The ends are easier to pick when this bank is on top. (In warps for double-woven fabrics, such as table covers, etc., the width of the stripes probably will not be the same at both ends of the pattern beam. Whenever this is the case, particular care should be taken to make sure the pattern beam is not warped backwards; otherwise, it will not fit into the set and cannot be slashed, or at least it will be necessary to cross so many ends that it will be exceedingly difficult to slash the set.)

The slasher tender drops a lease string over the two solid-color beams and picks a lease in the pattern beam, thus separating the various colors. These lease strings are replaced by rods at the front of the slasher.

Now comes the slasher tender's most tedious and painstaking job—that of laying-in the pattern in the slasher comb. We shall assume that there are 22 twenty-toothed segments on the slasher, or a total of 440 dents. The slasher tender will put three warp ends to a dent, following Layout No. 1, starting with 5 ends of black, repeating the pattern 14 times with 32 ends over,

Layout No. 1 — Repeat of pattern showing starting point and ending point of pattern at the two edges of the warp

Start.....	5 ends Black	
	4 ends Red	
	2 ends Blue	
	4 ends Red	
	2 ends White	
	4 ends Red	14
	2 ends Blue	repeats
	4 ends Red	plus
End 5.....	12 ends Black	32
	4 ends White	ends.
	4 ends Blue	
	18 ends White	
	4 ends Blue	
	4 ends White	
	7 ends Black	

80 total ends per repeat

Layout No. 2

Repeat of pattern

18 ends White
4 ends Blue
4 ends White
12 ends Black
4 ends Red
2 ends Blue
4 ends Red
2 ends White
4 ends Red
2 ends Blue
4 ends Red
12 ends Black
4 ends White
4 ends Blue

80 total ends in the pattern

Layout No. 3

Box Chain Layout

14 picks White — Box No. 3
4 picks Blue — Box No. 1
4 picks White — Box No. 3
10 picks Black — Box No. 4
4 picks Red — Box No. 2
2 picks Blue — Box No. 1
4 picks Red — Box No. 2
2 picks White — Box No. 3
4 picks Red — Box No. 2
2 picks Blue — Box No. 1
4 picks Red — Box No. 2
10 picks Black — Box No. 4
4 picks White — Box No. 3
4 picks Blue — Box No. 1

and ending with 5 ends of black. The slasher comb is now drawn in to fit the width of the loom beam that the set is to be run on, and the slasher put into operation.

Drawing the ends in the required harnesses and reed is the next step in the preparation of the warp. As the pattern is to be a plain weave, only two harnesses will be required, with the ends drawn alternately—one on harness No. 1 and the other on harness No. 2, until the entire warp is drawn-in. As the width of the cloth is to be 36 in., the width of the warp in the reed will be approximately 40 in., to allow for the contraction from the reed to the fell of the cloth. The total of 1,152 ends divided by 40 in. in the reed will give 28.8 ends per in. in the reed. We shall use a 14.5 reed (14.5 dents per in.) and draw the warp, 2 ends per dent. This will make the body of the cloth 39.7 in. in the reed, which will be about the correct reed width to come down to 36 in. at the fell of the cloth.

Now that we have the warp prepared and drawn, ready for the looms, we must figure the box chain necessary for weaving the pattern desired. As our pattern is to be square (the pattern to be of the same dimension in the filling as in the warp), we shall use the ratio of the pick to the sley (30 divided by 32) as our differential between picks of color and ends of color. From Layout No. 2 we multiply the number of ends of color by the differential to get the number of picks of color to make the stripes in the filling the same width as those in the warp (see Layout No. 3). The usual box loom makes a minimum of two picks to a color (unless it is a pick-and-pick loom). Hence, we shall be unable to make the filling stripes exactly the same width as the warp stripes, since we must arrange our picks in multiples of two. However, after the box chain has been made and a sample of the pattern woven, multiples of two picks of a color can be taken from or added to the box chain, to make the pattern as nearly square as possible. Layout No. 3, shows also, the arrangement of the filling colors in the boxes.

The colors should be arranged in the boxes so that there will be as small a jump as possible from box to box. For instance, we would not want to change directly from box No. 1 to box No. 4. and it would be desirous to have as few changes as possible from box No. 1 to box No. 3 or from box No. 2 to box No. 4. Such changes are hard on the looms and cause an excessive number of loom stoppages. However. with the pattern discussed in this article, we shall have to allow several two-box changes.

Useful Maintenance Tools

Devised by master mechanics for tightening studs and detecting grounds

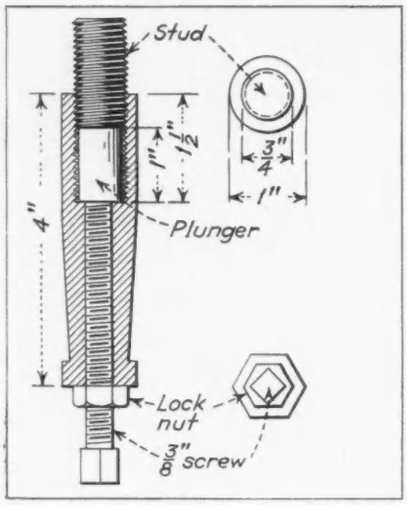


Fig. 1. Stud tightener

IN MANY textile mills, sometimes hidden away, are various ingenious gadgets constructed by members of the mechanical staff. These usually contribute materially to the efficiency of mill operations and pay for themselves in a short length of time. Occasionally, a kink of this sort published on these pages is the answer to a question which has long been bothering a reader. At other times the reader knows a better way of doing the same job. Here are two, gleaned from various mills by TEXTILE WORLD'S roving reporter:

A useful tool that can be made in a mill shop was constructed by J. A. McAllister, master mechanic, Mills Mill, Greenville, S. C. This device is a stud tightener.

Threads on studs are often ruined by the use of a Stillson wrench in tightening them. However, a good machinist can, in a couple of hours, make the device illustrated in the accompanying drawing which will pay for itself many times in the course of a year. The stud tightener is made from a piece of 1-in. cold-rolled steel, 4 in. long, bored at one end to receive the stud and at the other end to receive a long ⅜-in. screw. Between the two is a plunger. The screw-end of the tightener is squared to take an ordinary wrench, and there is a lock-nut on the screw.

The stud to be tightened is screwed into the hole as far as possible, and the tightener screwed onto the protruding end until it touches the plunger. Next, the ⅜-in. screw is given a turn or two until the plunger causes the stud to bind. A wrench applied to the square back of the tightener can then be used to force the stud into the hole without the slightest danger of stripping or injuring the threads.

QUITE A NUMBER of mills which do not have modern switchboard equipment have found it helpful to rig up a simple device, composed largely of electric light bulbs and wire, to aid in locating grounds. Illustrated in Fig. 2 is a case where a 550-volt, three-phase circuit is coming into the mill. Ordinary 110-volt lamps are mounted, as shown at *A*, either on a panel or in a metal box using signboard outlets. When there is no ground, all lamps burn except the one marked *B*. If a ground develops anywhere on the branch feeders, one leg of four lights will go out and lamp *B* will burn. The leg that goes out indicates which wire is grounded. By pulling the feeder switches in rotation the ground can be localized in one particular branch. If bus bars carry 440 volts, three lamps are used in each leg; or one lamp for each 110 volts. This idea can be carried further by having a similar panel located in each department, so that the trouble can be localized even more quickly.

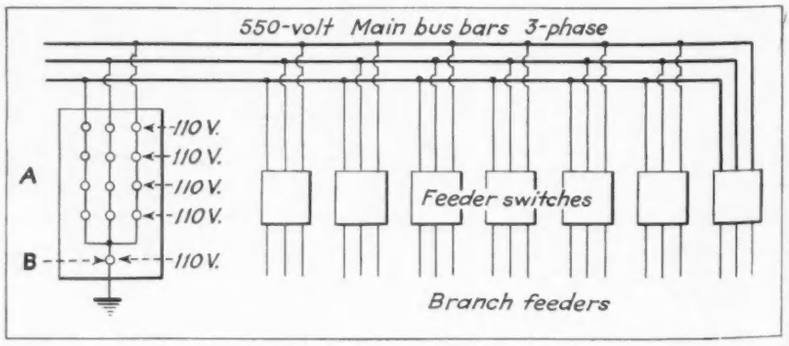


Fig. 2. Ground detector

QUESTIONS & ANSWERS

Reed Marks in Rayon Fabrics

Technical Editor:

We have been for many months experiencing considerable trouble with regard to reed marks in the weaving of rayon fabrics. We are wondering whether or not you could let us have a suggestion or two, as it might be possible that information obtained from you would be of more use than any we have so far had. We find the greatest trouble occurs in the "Chalkelle" quality of rayon as compared to bright rayon. (8519)

It is impossible to state definitely the cause of the reed marks without seeing a sample of the fabric in which the defect occurs. However, we are giving below some general suggestions which may help you. We assume that your harnesses are entered "skip"; if not, we advise they be so. We also suggest that you examine your shed as to size and evenness of lift. Too large a shed will cause this condition; unevenness in lift will do likewise. A shuttle that is riding the reed will cause reed marks. A reed that is of a hard nature will also cause this trouble. We suggest use of a soft-wired reed; in weaving rayons the softer the reed the better the results. Make sure your whiproll is in line; if you raise the whiproll slightly, you will obtain a better cover on the cloth.

In fabrics of light construction reed marks are more pronounced and can usually be seen in their original form as reeded. With some weaves it is frequently found necessary to use finer reeds to avoid reed marks.

Stained Tape

Technical Editor:

I am submitting to you a piece of tape which was dyed in skein form and which has streaks. Loosely tied, 1-lb., 54 in. skeins are given a kier boil of 8 hr. previous to being dyed. I have tried dyeing them cold and then bringing the bath to a boil; also have tried dyeing them at boiling temperature. However, I cannot eliminate the streaks. What is the trouble? (8598)

The streaks have the appearance of dryer streaks, which do not originate in the dyebath, but form as the material is being dried. If dyebath is not entirely exhausted, and some loose color remains inside the fabric after rinsing, when the goods are subjected to the mild heat of the dryer, the water in the goods dissolves some more dye off the dyed fibers and this travels by capillarity to the outside edges, where the surface is drying more quickly. As more and more dye is being dried on the folds, there is a concentration of color and a streak of dark color or else a bronzy mark appears. The remedy is to set the dye before drying. A simple method of setting direct colors is a rinse in a bath containing epsom salt and acetic acid, or use can be made of the proprietary materials which make colors fast to water.

Weaving Letters in Selvages

Technical Editor:

Please explain how to peg a chain in order to weave the letters Q and K in the selvage. Some of our looms have 5 back-jacks and some 8. On the 5 jacks I use 5 heddles, or 25 ends to the set; on the 8 jacks I use 3 heddles, or 24 ends to the set. (8535)

Lifts for weaving a Q and a K are given below:

K	Q
1st pick..1–5	1st pick..2–3–4
2nd pick..1–4–5	2nd pick..1–5
3rd pick..1–3–4	3rd pick..1–5
4th pick..1–2–3	4th pick..1–5
5th pick..1–2	5th pick..1–5
6th pick..1–2	6th pick..1–5
7th pick..1–2–3	7th pick..1–5
8th pick..1–3–4	8th pick..1–5
9th pick..1–4–5	9th pick..2–3–4
10th pick..1–5	10th pick..4–5

You will note we have not put in binders where ends are floating for a large number of picks. We are leaving this to your discretion. By putting in binders or sinkers you will have 20 picks.

Checking Shuttles for Balance

Technical Editor:

What is being done in up-to-date mills towards checking of shuttles to ascertain whether or not they are properly balanced? Is it standard practice to check new shuttles for balance when they are received at the mill? (8633)

There is no need to check new shuttles, purchased from reliable sources. Reliable shuttle manufacturers inspect their shuttles before they are shipped; the slightest imperfection causes them to be classified and stamped as seconds.

Shuttles will vary somewhat in size, weight, and balance due to differences in the wood. On single-shuttle looms this is immaterial, as the looms can be adjusted to take any shuttle within a certain range. On multiple-shuttle looms, shuttles must be of equal weight and size, and it is best to purchase shuttles for use on looms of this type in sets. The whole set can then be placed in the loom without any checking other than the filling tension.

New shuttles should be placed in the loom without removing the varnish, as this will help preserve them. If the fabric being woven has a weave such that some of the shuttles are inactive for relatively long periods, the less active shuttles should be exchanged with the more active ones, at least once a week. This will cause all the shuttles in a set to wear down alike. Old shuttles either can be kept for single-shuttle weaving or matched in sets for other looms.

Streaks in Dyed Rayon French Crepe

Technical Editor:

Inclosed herewith is a swatch of rayon French crepe dyed wine. I seem to have trouble with some of my developed wines and reds, in which there are spots and streaks, as you will notice by examining the swatch. It seems to me that there is a resist of some kind. Will you be kind enough to look at this swatch and advise me as to the cause of the defect. (8592)

Since the original cause of the streaks has been removed in the dyeing operations, we must reason backwards and see what conditions might be present to cause them. First, there is the question of how completely the warp sizing was removed before dyeing was started. These goods are quite firm and tightly woven, and a simple wash or boil-off would not be sufficient to make them perfectly free from the sizing materials, which would surely cause streaks if left in the goods. Then, there is the question of whether the soap was entirely removed from the goods, or whether it had formed lime soap with hard water and so made resists on the goods. Up to this point the remedy would be to give the goods a long energetic boil-off with the addition of some lime-soap inhibiting agent, both in the bath and in the rinse waters.

Next comes the dyeing operation. On account of the relative tightness of the goods, they must be dyed slowly; that means not to add salt to the bath at

once, but to allow the color to diffuse and penetrate well, and then add only small portions of salt to finally exhaust the bath. If the color jumps on too quickly, it may collect on the folds and creases and so form streaks. In this case the streaks are lighter, and it may be that the inner creases were so tight that little dye could penetrate.

The final and most likely cause is that the lot was exposed to too much light while in the diazotized condition. It takes only a short exposure to light to cause streaks exactly like the ones on this swatch, which show themselves after the lot has been developed. This fact has been observed many times, and now most dyers arrange to do such work in dark parts of their dyehouses or to darken the windows. Do not paint the windows blue, as many do, but use a red-orange as in a photographic dark room.

We suggest that you check back over all these possibilities. With the advantage of being actually at the scene of the trouble, you will probably be able to decide which was the real cause.

Warpwise Streaks in Acetate Fabric

Technical Editor:

Inclosed is a sample of cloth made from acetate yarn. Upon inspection you will find warpwise streaks. Several suggestions have been offered as to the cause of the streaks. We would greatly appreciate your opinion on this. (8553)

It is our opinion that the warp streaks in this fabric are caused by uneven tension in warping or winding. We note that on redyeing these warp streaks still remain in the fabric, and on examination of the yarn from the defective area find that this yarn shows a stretched or strained condition. Elimination of the defect calls for removal of the unevenness in tension causing it.

Lime Deposits in Bleaching

Technical Editor:

At times in bleaching of cotton yarn in skein form, lime salt will be deposited on the yarn. These deposits show up in big blue blotches when the yarn is blued. The yarn is boiled off with 2% caustic, 3% silicate of soda, and 1% kier oil. What causes this deposit, and how can it be removed, once it is on the yarn? (8631)

There is a strong reason to suspect that the silicate of soda is accessory to the formation of calcium silicate, which is very hard to remove under any circumstances, as it is insoluble and has a strong affinity for the fiber. The best plan would be to prevent the formation of any lime compounds. There are a number of materials which inhibit the formation of any calcium soaps or deposits. One of these might be used in place of the kier oil.

Procedure for Rag Picking

Technical Editor:

I have sent you samples of pickered knits. Is the stock properly pickered, and has it enough oil? Also, will you please answer the following questions: How much oil should be put on 100 lb. of soft knits for rag picking? On hard worsted knits? What kind of oil and what percentages of oil and water should be used? What are the correct speeds of picker feed rolls and cylinder, and what should be the approximate production. (8556)

The samples submitted have been examined and compared with commercial samples of similar types. The only criticism is that it may be possible to eliminate some of the lumps by more careful adjustments of the bit fan, the steel bit slide adjustment, the lumper regulator door, and the sliding back door. All of these parts can be regulated to $\frac{1}{64}$ in.

If your pickers are already correctly set, as outlined above, the picked stock could be freed from the bits and lumps by passing it through a lumper. This machine is used to separate the bits of cloth from the fiber.

From 10 to 12% of oil should be applied to soft knit goods. For hard knit worsteds, as much as 15% oil may be required.

Oils generally used are mineral and red oil, made up into an emulsion, which should be applied hot. Make the layers about 3 in. thick and apply the emulsion to every layer, allowing the pile to set overnight, or longer if necessary, to obtain thorough penetration. Emulsions may consist of 35 to 60% oil. The oil may be blended, 4 parts mineral to 1 part red oil. A 50-50 emulsion would contain 40% mineral oil, 10% red oil, and 50% soft water, plus enough borax to stabilize the emulsion.

Speeds of both feed rolls and cylinder should be suited to the stock being picked; feed rolls, from 5 to 10 ft. per min.; cylinder, with 31-in. diameter over pins, 800 to 850 r.p.m. A 36-in. diameter cylinder may be run 650 to 800 r.p.m. on soft woolens.

The quantity of lumps left in the picked stock is decreased by reducing the speed of the feed rolls and increasing the speed of the cylinder. The wider the setting between feed rolls and cylinder pins the longer will be the staple, but the larger will be the quantity of bits in the stock. The cylinder should be reversed frequently, not only to wear the pins evenly, but also to keep them sharp.

Production is controlled by the type of rags being picked and the quality of product desired. Some manufacturers are content with 40 to 50 lb. per hr., but from 100 to 125 lb. per hr. has been obtained, when picking ordinary soft woolen rags.

Backing Yarns Show on Face

Technical Editor:

I have been setting up Tompkins spring-needle machines on double fleece, using combinations of 7s or 8s backing yarn, 36s tie and face yarns; and 7s backing yarn and 26s tie and 24s face yarns; with 22-gage needles. Ring-spun cotton yarn is used. The landers and pressers are set correctly and backing yarn ravels freely off the needles, but still it shows through to the face of the cloth. How can this be overcome?

Also, what is the proper way to grind a plain presser—absolutely straight the full length or slightly concave? (8668)

Use of an outside cast-off wheel in place of an inside cast-off wheel will tend to keep the backing yarn on the back of the fabric. Another aid is to use a backing wheel with a flatter angle; this does not cause the backing yarn to be carried down so far on the needles; hence, there is slightly less yarn to come through to the face. Incidentally, 36s tie and face yarns are slightly finer than the average used for this type of work on 22-gage machines, and this might make it possible for the backing yarn to come through more readily.

While knitters vary in their opinions as to the proper way to grind a presser, there is no necessity of grinding concave on a presser of ordinary length. The heel and toe should be rounded slightly and the rest can be straight. However, if for any reason a long nosed presser is used, it becomes almost necessary to grind the edge concave to conform to the cylinder.

Thin Places in Worsted Yarn

In the reply to Question 8503 published in this department last month, details of the recommended worsted drawing layout were omitted. They are given below:

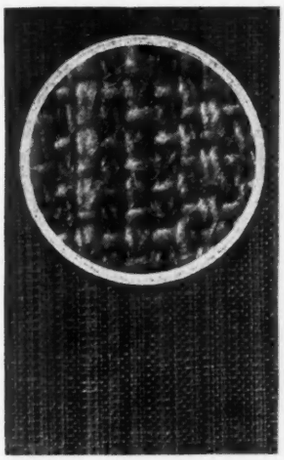
DRAWING LAYOUT

Operation	Ends	Calculated Draft	Dram Wt. Delivered 40 Yds.	Grain Wt. Delivered 40 Yds.	Ratch
Can Gill	4	4	384	10500	
2 Sp Gill	3	4	288	7870	
Weigh Box	3	5.25	164	4500	$6\frac{1}{4}$ in.
Drawing	3	5.25	94	2570	$5\frac{3}{4}$ in.
Finisher	2	5.25	35.8	979	$5\frac{1}{2}$ in.
Reducer	2	5.1	14.0	384	$5\frac{1}{4}$ in.
Rover	2	5.1	5.5	150	5 in.

STAPLE COTTON FABRICS

BY JOHN HOYE
Fabric Technician with W. Harris Thurston, New York

This forty-fifth installment of Mr. Hoye's series of articles on staple cotton fabrics—which began in the January, 1936, issue—completes the discussion of drapery and slip-cover fabrics.



Jaspe' cloth, 50 in., 90x44, 2.04 yd., 2-and-1 basket weave

Yarn-Dyed Woven-Design Drapery Fabrics

(Continued from August instalment)

Dobby-woven drapery fabrics include those with small figured effects; these also are called damask. Drapery fabrics also are made with heavy ply yarns and have loose homespun textures. The background of these fabrics is a neutral tan decorated by varicolored plaids, stripes, checks, etc. Other drapery fabrics are plain woven in solid colors and with dyed yarns.

Drapery fabrics are used for draperies, valences, portieres, fancy pillows, bedspreads, upholstery.

Yarns: 150- to 300-denier filament rayon, 12s to 20s spun rayon, 6s to 12s single plain cotton yarn, 8/2 to 20/2 ply plain cotton yarn, 3,500 yd. per lb. seed yarn, 1,000 to 3,000 yd. per lb. ratine yarn, 3 cut to 12 cut (12 cut = 2850 yd. per lb.) chenille yarn, spiral yarn (3s to 6½s roving or soft-twist yarn plied with 21s single yarn). The rayon yarns generally are used in the warp, and the other yarns in the filling.

Examples of colored-yarn drapery fabrics:

50 in. 96x30 jacquard design, 300-denier rayon warp and 6s cotton filling.

50 in. 144x26 jacquard design, 150-denier rayon warp and 3500-yd. seed yarn filling.

50 in. 30x22 0.87 yd. dobby design, colored warp stripes; 7/2 cotton warp and filling.

Colored-Yarn Woven-Design Slip-Cover Fabrics

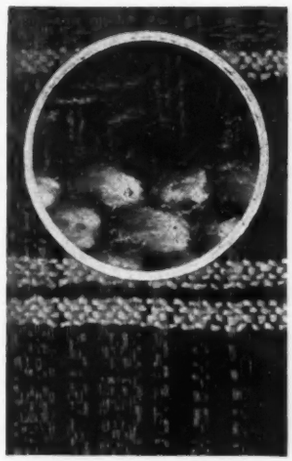
Colored-yarn woven-design fabrics are used for slip covers, which generally are used for covering regular upholstered furniture during the summer months. These fabrics also are used extensively for upholstering moderate-priced furniture.

Dyed-yarn slip-cover fabrics usually are of all-cotton yarns and generally are woven with dobby designs. Yarns used include both regular and novelty yarns, such as slub, spiral, mock-twist, ratine, heavy roving, etc. Design for the ground weave of the cloth may consist of a rough crepe or pebbly effect, a herringbone twill, a rib or rep effect, or a loose homespun.

Novelty yarns are used for decoration; decorations include box-loom effects, such as lateral or filling stripes, plaids, and overchecks. Another form of decoration is the raised warp stripe —usually of varicolored heavy ply or spiral yarns. Since the yarns used for these stripes are woven differently and contract differently from yarns used for the ground weave, it is necessary to use an extra warp.

Jaspé cloth, a woven-design slip-cover fabric has fine stripe effects formed by arranging warp ends in groups of contrasting shades of the same color. These ends are arranged side-by-side in the following order: light, medium, dark. Light shade filling is used. This fabric is made in plain or basket weave. Dobby-woven fancy jaspé is made with colored-dot effects.

Heavy, coarse, loose-texture slip-cover fabrics are known as woven crash. They often are referred to as Swedish, peasant, or Mexican crash, according to the style trend or influence affecting the colors and patterns used. Some slip-cover fabrics also are referred to as furniture denim.



Dobby-woven slip-cover fabric, 36 in., 72x44, 2.16 yd., lateral stripes of spiral yarn on crepe-texture ground

Cheaper qualities of slip-cover fabrics often are given a firm, starched finish. Better qualities are finished moderately soft and without size, and sometimes are pre-shrunk. Slip-cover fabrics usually are made 36 in. wide (some are made 50 in. wide) in weights of from 5.00 to 1.90 yd. per lb. for 36-in. widths.

Slip-cover fabrics are used for covers for sofas, chairs, porch sets, day beds, etc., and for matched sets of drapes and spreads for couches, beds, etc. Heavier weight fabrics are used for upholstering day beds, couches, chairs, etc.

Warp yarns: 12s to 22s. *Filling yarns:* 5½s to 16s. (Heavy roving often is used in the filling.)

Examples of colored-yarn slip-cover fabrics:

36 in. 72x40 2.36—white and colored spiral yarn warp stripes with box-loom check effects on crepe texture ground, 12½s average yarn number.

36 in. 68x34 2.04—white and colored awning stripe effects (twill-woven stripes on plain-woven solid-color ground), 10s average yarn number.

54 in. 48x42 2.07—white and contrasting-color plaid on solid-color ground, dobby weave, 13s average yarn number.

50 in. 104x50 2.10—striped jaspé, 2-and-1 basket weave, 22s average yarn number.

36 in. 48x34 5.00—striped jaspé, plain weave, 20s average yarn number.

LOOMFIXERS' MANUAL

WOOL SECTION—Chapter VIII—(Continued)

By BENJAMIN F. HAYES

Picking Motions

PRELIMINARY SEASONING of pickers by soaking in oil and subsequent draining will do much to increase the life of both pickers and picker sticks, as was pointed out in the first installment of this chapter (TEXTILE WORLD, July, 1939, issue).

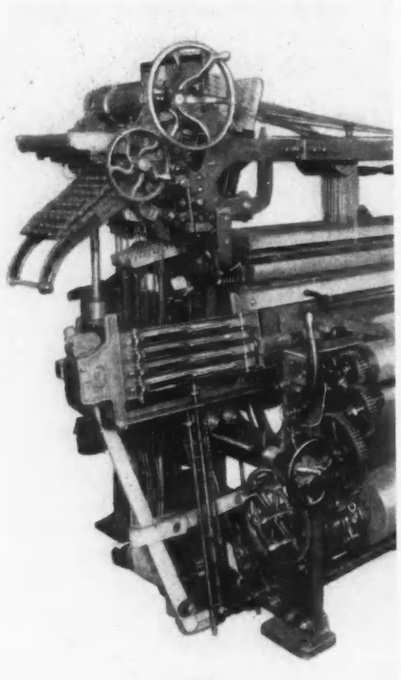
The manner in which pickers are placed on looms likewise has important bearing on their lasting qualities, and on the correctness with which they function. The method which the writer has used with success for many years is described below. First, notice whether or not the picker spindle has a flat surface worn on it for about 8 or 10 in. on the outside end. This wear results from the picker's having been pressed against the picker spindle, at the start of the shuttle's movement, by the binder and binder spring; over a period of four or five years the pressure is sufficient to wear down the spindle on one side. Should such a flat surface be noticeable, turn the picker spindle halfway around, so that it will have a true line on the inside.

Next, tighten the setscrew fastening the picker spindle in the outside picker-spindle bracket. Then, with the spindle clear of packing and the forward end of the spindle near to but not in the inside picker-spindle bearing, ascertain whether or not the forward end of the spindle centers with the inside bearing. If it does not, either file or pack the outside spindle bracket, as the case may require, until the correct fit is obtained.

BENDING OF PICKERS when they are placed on looms is bad practice. It is safe to say that 98% of the drop-box pickers that break do so because they were bent before being placed on the looms. Reversible pickers, on the other hand, break when they are worn out, whether or not they have been bent.

Loomfixers who bend pickers when placing them on looms do so either through ignorance or because they are not willing to take the time necessary properly to adjust their looms. When it is necessary to bend pickers to make them work freely, there is always a cause for the condition; it is up to the loomfixer to discover the cause and remove it, rather than just to bend the picker and pay no attention to the real trouble.

For example, the writer once found that a picker he installed worked freely in boxes Nos. 2, 3 and 4, but stuck in box No. 1. This was found to be due to the fact that the first box was too high. The mill had purchased new shuttle boxes, and was using larger shuttles than the looms were originally designed to accommodate. This change resulted in there being too little space between the bottom of the shuttle box and the lay end to allow the top box to come even with the raceplate. The remedy in this case was to raise the lay about a ¼ in. by placing packing between lay and lay end. It was then an easy matter to adjust all four boxes so that they came even with the raceplate, and after this adjustment there was no trouble with sticking pickers, nor any need to bend pickers when applying them to the loom.



Loomfixers should know the condition of pickers on their looms

Although loomfixers should know at all times the condition of the pickers installed on the various looms of which they take care, when reversible pickers are in use, closer attention is required than is necessary with those of the drop-box type. These pickers must be reversed at the proper time if maximum wear is to be expected from them. Neglect of this means extra work for the loomfixer and extra expense for the mill.

ON NEW LOOMS which have recently been put into service, it will be found that wear of shuttles on pickers consists only of round holes, regardless of whether one or a number of shuttles are in use. However, on looms which have been in use for a considerable period, it is often found that on multiple-shuttle weaves the shuttle tips cut slots in the picker faces. Pickers so cut will run only about half as long as they should. Therefore, the cause of the wear should be determined, and, if possible, removed.

Loomfixers who start the movement of boxes early in order to prevent shuttles from flying out frequently unwittingly cause slotted pickers. Such flying out of shuttles is caused by the pickers starting the forward movement of the shuttles before the boxes have finished moving. Starting the boxes early is not the best way of remedying this situation. A better practice is to set the eccentric motion to give the boxes a faster movement, rather than merely setting the boxes so they start their movement earlier.

A SHUTTLE TIP which contacts the picker too high when the shuttle is fully in the loom, but which centers with the picker face when the shuttle is about to leave the box, is another cause of abnormal picker wear. Pickers wear most in the first half of their movement, for the reason that it is during this time that the binder is pressed against the shuttle. But, if the contacting point is lower on the last half of the picker's movement, there is a scratching action of shuttle-tip on picker.

The contacting point should be exactly the same with the shuttle fully into the box as it is when the shuttle is about to leave the box. When this is not the case, it will usually be found to be due to the fact that the shuttle box is higher at the far end than at

the end nearest the raceplate. The boxes should be adjusted so that the picker race of the shuttle box will be even with that of the lay end.

On heavy looms, in which the shuttle box is fastened to the box-lifting rod by means of a machine screw which passes through a small casting riveted to the underside of the box, simply loosen the setscrew on the rocker casting, and allow this casting to slide closer to the loom frame, thus raising the inside end of the shuttle box. The boxes can then be dropped by means of the adjusting rod on the end of the box lifting chain.

(*Chapter VIII will be continued in an early issue*—Editor)

COTTON SECTION—Chapter VI—(Concluded)

By IVAR MOBERG

Picking Motions

TO SET THE BOX FRONT, on looms with fixed pickers, remove the picker and place a shuttle on the box plate so that the point of the shuttle is against the picker stick. Move the box front until the point of the shuttle contacts the picker stick at its exact center. At this point tighten slightly the cap screws in the box front. Now move the shuttle out of the box until the widest portion of the shuttle is opposite the inside cap screw. Then, with the shuttle against the box back, adjust this end of the box front so that there will be ⅛ in. clearance between shuttle and box front at this point.

Check the box front with a square to make sure that it is at not more than a 90° angle to the box plate, although it may satisfactorily be at one or two degrees less. Resort to filing if necessary to bring it to the proper angle.

Now, again push the shuttle point against the picker stick, and move the stick from side to side in the slot of the picker-stick guide. The point of the shuttle will make a scratch on the picker stick; this scratch should be in the center of the stick. If it is not, adjust the box front until it is. Then check the ⅛-in. clearance at the inside end of the box front.

(An alternative method, recommended by Draper Corp., is to center the point of the shuttle on the picker-stick slot in the box plate, or lay end, and set the outer end of the front box plate accordingly. Then adjust the inner end of the front box plate to give ⅛-in. clearance over the shuttle. Finally, adjust the binder for the proper boxing of the shuttle.—*Editor*)

Once adjusted, the position of the box front should never be moved, except for taking up slight wear. Make all further adjustment on binders, binder springs, and/or picker-stick checks, as the case may require.

A NUMBER OF DEFECTS may result from faulty picking motions. These, together with their causes, are listed below.

A. *Skips:* (1) Picking too early. The shuttle is picked out of the box before top center, and is forced to plow its way through the first portion of the shed, picking up ends from either top or bottom shed. (2) Picking too late. The shuttle is picked later than 15° beyond top center. This makes the shuttle so late in arriving at the opposite side of the lay that the shed closes over the shuttle and forces it into either top or bottom shed. (3) Picking too weak. Low shuttle velocity prevents it from crossing the loom before shed closes. (4) Picker dropping during its stroke. The dropping picker depresses the rear tip of the shuttle, and lifts its forward tip, causing it to pick over ends in the shed. (5) Picker too high at the end of its stroke. This may cause the forward end of the shuttle to drop down into the recess for the filling fork and ricochet upward into the top shed.

B. *Warp Breakage:* (1) Too early, too late, or too weak picking. Any one of these may force the shuttle heavily against the warp ends, and the friction and abrasion from this source may cause the ends to break. (2) Improperly adjusted picking motion which gives a wobbly flight to the shuttle. (3) Shuttle slap. The shuttle slaps the mouth of the box in entering and becomes rough; this roughness in turn, breaks the warp ends.

C. *Filling kinks:* (1) Shuttle rebounds in the box, due to too much force on the pick. (2) Shuttle rebounds in the box due to insufficient retardation by the picker-stick check. (3) Shuttle retardation too sudden, due to excessive binder pressure, too much friction on the check strap, or too short a check strap. (4) Insufficient checking of the shuttle, due to too long a check strap and/or lack of proper binder pressure.

D. *Pull-ins:* These can be attributed to the picking motion when the filling slackens after the shuttle comes to a sudden stop in the box, in which case the filling has a tendency to whip either over or under the jaws of the thread cutter. Causes include (1) too much force on the pick; (2) insufficient checking of the shuttle; (3) too sudden retardation of the shuttle; (4) shuttle slapping the shuttle box in entering.

E. *Broken picks:* (1) Too much force on the pick, the increased strain causing the filling to break. (2) Shuttle slapping the box front and the filling becoming pinched between the shuttle and box front. (3) Filling slackens after shuttle is stopped in the box on the battery side, and the extra length of yarn becomes caught between the shuttle and the box plate, or on the picker.

F. *Shuttle marks:* These generally appear on the cloth at the battery side of the loom when the filling gets caught between the box front and a slapping shuttle, or between the shuttle and the box plate.

G. *Rowiness:* This may result from a poorly adjusted picking motion which causes the loom to pick excessively hard from one side. The jar and vibration from a poorly adjusted picking motion often causes the friction let-off to slip, and the beam will move every other pick, instead of every pick.

H. *Loopy selvages:* Frequently these may be traced to a weak and/or late pick.

I. *Filling catching on filling fork:* Slack filling at shuttle stop. The slackness in the filling may be due to any of the causes listed under pull-ins, but on the opposite side of the loom.

Poorly and/or incorrectly adjusted picking motions may also be the cause of flying shuttles, which cause numerous injuries to operators; breakage of loom parts; ripping of warps and tearing of cloth; banging off; bad transfer smashes, caused indirectly by too strong, too weak, or uneven picking; driving gears in which the teeth in contact during the pick become excessively worn; etc.

(Warp stop motions will be discussed in Chapter VII of the Cotton Section of the Loomfixers' Manual, publication of which will begin in an early issue. Instructions on setting and adjusting the various types of motions will be given, and a summary of cloth defects due to faulty warp stop motions will be included.—*Editor*)

NEWS OF THE MONTH

We Think So Too

A meeting of the International Cotton Federation in Zurich, Aug. 5, resolved unanimously, in view of the chaotic conditions created in every branch of the cotton trade due to the uncertainty of the future method of disposal of the U. S. Government loan stocks, to press the American Government to adopt a definite and long-term policy relative to cotton releases, and to announce to the world at the earliest possible moment the manner in which this policy will be implemented.

In making this proposal, the meeting urged most strongly that the U. S. Government should take into serious consideration the absolute need of returning to the customary fundamental principles of trading. The present one-sided policy has seriously restricted the sale of American cotton, it was held.

It was further stated that confirmation that the wavering cotton policy of the U. S. Government has demoralized the whole market structure is established by the fact that the exports of cotton from the United States last season were the lowest recorded during the last half-century. The meeting also placed on record its deep concern at the inadequate replies received from Washington to previous complaints made by the Federation in regard to the supply of American cotton, and strenuously urged the U. S. Government to take immediate and effective action in response to this communication.

The resolution was cabled to Secretary of Agriculture Wallace and Secretary of State Hull.

Southern Garment Men See Changing Men's Wear

Approximately 150 men sat around luncheon tables on the Ansley Hotel roof garden at the opening session of the seventh annual convention of the Southern Garment Manufacturers Association, in Atlanta, Ga., Aug. 21.

Summer styles were much in evidence in the wearing apparel of those attending as well as in the exhibits of the 50 selling organizations doing an open-house business throughout the three floors allotted by the hotel for the purpose.

W. J. Vereen, vice-president and treasurer, Moultrie (Ga.) Cotton Mills, and president of the association, presided at the opening session. Paul A. Redmond, president, Alabama Mills, Inc., Birmingham, Ala., made a plea for cooperation in advancing the interests of the southern manufacturer. Geo. W. Henderson, manager of the Factoring Division, Trust Co. of Ga., presented an able discussion on "Planned Finance."

Progress in the affairs of the association and a brief resume of present activities were covered by Gordon McKelvey, counsel for the association. "Prison competition," he said, "has practically disappeared. This was one of the big problems which faced us as recently as 1932, and which has now dwindled to insignificant proportions."

T. S. Whitsel, Union Special Machine Co., briefly reviewed the history of garment manufacturing and stressed the necessity of utilizing modern methods.

"Wages and the South" was discussed by Major Arthur L. Fletcher, assistant administrator of the Wage and Hour Division, U. S. Dept. of Labor.

Officers for coming year were designated as follows: W. J. Vereen, Geo. H. Barnes and Sidney Rosenbloom, re-elected president and vice-presidents, respectively; Ben Wilkins, secretary-treasurer; Lee M. Happ, chairman of the board of directors.

Stamps used by the National Cotton Council in connection with collection of funds to carry on the activities of this organization, whose purpose is to develop broader outlets for cotton. The stamps are printed in blue for the producer, and red for the ginner. They are 1c in denomination and will be placed on each bale of cotton grown and ginned by cooperating Council members. In addition to the fees paid by the producer and the ginner, the compressors pay ½c, the cotton shippers a like amount, and the oil mills pay 1c per ton on cottonseed crushed.

Sixth Annual Silk Parade Poster which is being released by the International Silk Guild to department stores and specialty shops from coast to coast for window and departmental displays during the week of Sept. 18

A Plan For Paterson Dyers

The formation of a large sales corporation comprising silk dyeing and finishing firms in the Paterson, N. J., area has been presented to 53 dyers there by Arthur F. Morton & Co., certified public accountants and indus-

trial engineers, of New York. The report is the result of an exhaustive survey made by the company during the last several months at the request of about 20 of the leading dyers in that area. The plan calls for the formation of a corporation very similar to Allied Textile Printers, which came into existence there about a year ago when a group of the textile printers of the section merged into one company.

The central organization will be called Affiliated Processors, Inc., incorporated under the laws of New Jersey to act as sole selling agent for the component dyeing firms. In addition to having this central sales organization, the companies would have centralized technical, credit, claims, purchasing, finance and administrative departments.

Rayon Firms' Advertising Plans

What is described as the biggest seasonal advertising drive ever undertaken by the American Viscose Corp. is now under way for fall 1939. Starting with announcements in the trade press, it is extending to consumer magazines beginning with September and October issues and continuing through November and December.

A description of the campaign indicates the use of at least twelve magazines of national circulation, and states that, based on official circulation figures, the drive in the consumer field alone will comprise 18,893,732 advertising messages. Copy will stress merits of Crown-Tested merchandise.

The program consists of institutional. educational and brand advertising and does not include any of the so-called "cooperative" type of advertising which has been much the subject of controversy in the rayon field.

American Enka Corp. has launched a campaign, centered on copy to be carried in a group of national consumer monthlies, which will stress the fashion value of garments or fabrics bearing the "Fashion Approved" label of Enka rayon. A fashion board has been set up to pass upon the materials made of Enka, which, when approved by that board and verified for quality and serviceability, may carry this label.

International Fashions

One of fashion's newest creations in lace. A hint of the bustle—a skirt with extra fullness in back on Jean Dessee's cinnamon brown lace evening dress. This and other lace creations are attracting unusual interest this season.

TEXTILE MILL SIDELIGHTS—NO. 9

"What kind of a yarn is this salesman giving you, Miss Deering?"

To Stabilize World Cotton

Delegates from nine major cotton exporting countries met with the Secretary of Agriculture in Washington beginning Sept. 5 to consider a production and marketing control plan aimed at stabilization of world cotton trade. It seemed doubtful however, under war conditions, whether the more important cotton nations outside of the U. S. would commit themselves to any restrictions.

Secretary Wallace told the meeting that the American cotton subsidy plan was an emergency measure and he hoped the necessity for it would prove to be temporary. He said that with less than 25,000,000 acres planted this year, compared with 41,000,000 average for 1928 to 1932, he believed this country had reached the limit of acreage reduction, and he stressed that we had no intention of withdrawing from the world cotton market. He added that although war conditions may bar immediate solution, he urged that the problem be explored and some planning for the future undertaken.

Institute's Annual Meeting

The annual meeting of the Cotton-Textile Institute will be held at the Waldorf-Astoria Hotel, New York, Wednesday, Oct. 25.

S. T. A. Meetings Planned

Tentative plans for fall meetings of the Southern Textile Association, as recently developed at a meeting of the board of directors, include: Sept. 22, Gaston County Division; Oct. 7, Northern Carolina and Virginia Division; Oct. 21, Northern Master Mechanics; Nov. 4, Eastern Carolina Division; Nov. 11 and Dec. 2, indefinite, but Weavers

Founder's Day at Callaway Mills, LaGrange, Ga., witnessed the dedication of a Pullman sleeping car named after Fuller E. Callaway, Sr., the founder of the mills. Above shows Fuller E. Callaway, Jr. (at left), president of the mills and his wife, and (at right) his brother Cason J. Callaway and his wife; in background is Pullman. The exercises were held July 14 and as usual the employees of the mills were given a holiday with pay. Principal address was by Judge Lee B. Wyatt. Elmer Oliver, vice-president of Southern Railway System, represented his railroad. The car has been placed in the regular New Orleans to New York run.

and Slashers Division will be one day and Master Mechanics Division, the other. Places of meetings have not been definitely determined.

A.A.T.C.C. Annual Convention

The nineteenth annual convention of the American Association of Textile Chemists & Colorists will be held Sept. 15 and 16, in the Copley Plaza Hotel, Boston. Features of the meeting are the technical sessions on Friday afternoon and Saturday morning and the Annual Banquet on Saturday evening.

Papers on the following subjects will be presented: dyeing of Nylon, research from the consumer point of view, identification textile fibers, semi-resin finishes, flexibility and drape of fabrics, the Tintinoil process, new water repellent, new oxidizing agent, wool dyeing, measuring acid content of carbonizing baths, chemistry of wool, casein fiber, cation-active compounds, causes of damage in wool after dyeing, and dyeing of staple rayon.

To Head Sizing Research

Carl R. Harris, manufacturing engineer, Erwin Cotton Mills Co., Durham, N. C., has been appointed chairman of the administration committee for the cotton and spun-rayon warp sizing research to be conducted at North Carolina State Textile School, Raleigh, N. C., under the auspices of the U. S. Institute for Textile Research. The other members of the committee are Thomas Nelson, dean of the school, and W. E. Yelland, who was director of the Institute's previous research on the sizing of filament viscose rayon, and is now with Corn Products Refining Co. It was incorrectly announced last month that Perrin N. Collier had accepted appointment as chairman of the warp sizing committee.

TEXTILE CALENDAR

Piedmont Section, A.A.T.C.C., annual meeting, Hotel Charlotte, Charlotte, N. C., Oct. 7, 1939.

National Safety Congress and Exposition, Atlantic City, N. J., Oct. 16 to 20, 1939.

National Association of Cotton Manufacturers, annual meeting, Copley-Plaza Hotel, Boston, Oct. 18, 1939.

Cotton-Textile Institute, annual meeting, Waldorf-Astoria Hotel, New York, Oct. 25, 1939.

Carolina Yarn Group, annual outing, Pinehurst, N. C., Oct. 27 and 28, 1939.

Industrial Management Society, national motion and time-study clinic, Nedinah Club, Chicago, Nov. 3 and 4, 1939.

17th Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4, to 9, 1939.

Sixth International Heating and Ventilating Exposition, Lakeside Hall, Cleveland, Ohio, Jan. 22 to 26, 1940.

Carolina Yarn Outing

The annual outing of the Carolina Yarn Association at Pinehurst, N. C., is scheduled for Oct. 27 and 28. Headquarters will be at the Carolina Inn. S. L. Diggle, president of the Association is chairman of the Golf Committee; Harry Dalton is chairman of the Entertainment Committee; Joe Mason is in charge of skeet; K. C. Laughlin is in charge of invitations.

Southern Chemists Play

Approximately 200 registered at the Lookout Mountain Hotel, Chattanooga, Tenn., for the annual summer outing of the South-Central Section of the American Association of Textile Chemists and Colorists Aug. 4 and 5.

At the nearby Fairyland golf course, a two-day tournament tested the mountain-climbing ability of the players as well as their skill in that ancient and honorable sport. A brilliant 63 won the first prize for Tom Davis, of Muscogee Mfg. Co., Columbus, Ga. Jim Cassell, 68, Jack Anderson and Fletcher Kibler with 70's, and W. O. Goolsby with 71, gave respectable competition.

Not to be outdone by the chemists, the salesmen entrants gave a good account of themselves by putting forward Geo. Witham, of Ciba Co., who shot a low net of 61 for the leading honor. W. R. Sargent, 62, Lee Baker, 63, were also "in the money."

In the Textile Markets

COTTON GOODS—The war threat in the last half of August brought considerable nervousness to the cotton goods market and operations were exceedingly slack. Prices on gray goods were submitted to considerable pressure as second-hand offerings came on the market as concessions. First-hands made a valiant attempt to hold their prices and sales volume was considerably reduced. After the war declaration, extreme activity ensued and prices rose. Denims went to 12½¢ and print cloths sold on Sept. 8 on the basis of 5¼¢ for 38½", 5.35 yd., 64 x 60s. Raw cotton was also active and prices touched 9.52 for October.

WOOL GOODS—Through August there was a falling off in interest in

fall goods and the expected recovery did not take place. The opening of summer fabrics for 1940 was fairly well supported and the mills which specialize on these materials are enthusiastic over the prospects. Already there has been an advance in tropical worsteds of 2½¢ a yard. After the war started most fabric lines were withdrawn. The raw wool market was generally quiet and prices on tops eased slightly through the month. After Sept. 2, prices were sharply advanced and most offerings withdrawn.

CARPETS—Carpet prices are being advanced. Mohawk raised its figures on Aug. 25. The Bigelow-Sanford advance was effective Sept. 7. Alexander Smith & Sons and others also raised prices.

RAYONS—There was improved forward buying of continuous filament yarns in August as users began to take steps to protect their deliveries against possible future emergencies. The acetate situation is very tight because of the tie-up of one large plant by strikes, but marked demand has spread to viscose types as they seem equally as strong. Rayon fabrics have met good demand with users willing to anticipate more freely. Prices are rising.

SILKS—Silk prices remained relatively firm through the latter part of August after a slight recession from the highs touched at the end of July. Mill takings for the months of May, June and July were always in the narrow range of 26,142 to 26,256 bales. The monthly average for 1938 was 34,300 bales. Raw silk jumped on war news but eased later.

HOSIERY—Further advances in price of full-fashioned silk hosiery are being held in abeyance. It is said on the market that changes are not likely until October, and what will be done then obviously hinges on turns of events which are still by no means clear. The minimum wage of 40¢ per hour for full-fashioned mills is not interpreted as making sufficient impress on costs to warrant price advances on that fact alone. However, the 32½¢ minimum wage for seamless mills is likely to effect the market for half hose.

UNDERWEAR—The fall situation in cotton underwear was definitely strengthened through August with price advances on heavy weights established by several large mills.

OUTERWEAR—Outerwear mills have closed a satisfactory bathing suit business and mills anticipate further gains in knitted bathing suits in the 1940 season. Sweaters and similar garments for fall for the current fall are being taken.

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This and That

◆ Earl Constantine, president of the National Association of Hosiery Manufacturers, will lead a discussion of the functioning of industrial committees under the wage-hour act on Sept. 21 during the morning session of the annual convention of the American Trade Association Executives to be held Sept. 20-23, at the Westchester Country Club, Rye, N. Y.

◆ The 1939 semi-monthly cotton quality reports will be issued on dates coinciding with the cotton acreage and production reports and with the Bureau of Census reports of cotton ginned. These dates for the season are Sept. 8 and 23, Oct. 9 and 25, Nov. 8 and 21, and Dec. 8 and 20. On or about March 20, 1940 a quality report on the entire 1939 crop will be released.

◆ Trade information regarding prospects for delivery of Nylon hosiery on a commercial basis indicate that they cannot be expected before spring 1940, and that the total probable production will not exceed 5,000,000 dozen pairs of women's full-fashioned hosiery during the calendar year of 1940. In all likelihood the first numbers to appear will be in the finer gages, ranging from 45 to 51. The price will probably be not less than $1.15 per pair at retail.

◆ Dept. of Agriculture called a meeting for Sept. 14 of representatives of associations covering cotton growers, shippers, manufacturers, etc., at Washington, to discuss a cotton loan program for the 1939 crop.

◆ Columbia University, New York, announces a group of 14 evening courses on textiles under the general direction of Herbert R. Mauersberger.

◆ At the Sept. 13 meeting of American Association of Textile Technologists, "Throwing of Rayon" was discussed by Charles Epstein, Liberty Throwing Co., and W. Macia, A. M. Tenney Associates.

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NEWS ABOUT MEN

William P. Galey, Jr. has been elected president of Aberfoyle Mfg. Co., Chester, Pa., succeeding **Charles E. Lord,** who has resigned after serving in that capacity for 29 years and after a connection with the company running for 57 years. Mr. Galey is son of the founder of the business who died in 1910, and he has been associated with the firm throughout his business career of more than 25 years, recently acting as secretary. Mr. Lord continues as president of Galey & Lord, the selling agents for Aberfoyle.

Thomas L. Leslie has been elected vice-president in charge of advertising and promotion of Fruit-of-the-Loom, Inc. Mr. Leslie joined that organization in 1936.

Albert A. Clune, who recently resigned as treasurer of the National Federation of Textiles, has been appointed executive vice-president and secretary of the Silk and Rayon Credit Association, Inc., New York.

A. H. Huss has become chairman of the Board of the Rhyne-Houser Mfg. Co., Cherryville, N. C. Other officers of the company are as follows: **Dr. F. M. Houser,** president; **Howard K. Houser,** treasurer and general manager; and **J. W. Abernathy** and **David P. Dellinger,** vice-presidents.

Thurmond Chatham, Winston-Salem, N. C., president of the Chatham Mfg. Co., was scheduled to address the convention of the Financial Advertisers Association, at Toronto, Sept. 11 to 14, on the subject of industrial relations.

K. S. Tanner has become president of Grace Cotton Mills Co., Rutherfordton, N. C.

E. J. Boswell is the new president of Courtney Mfg. Co., Newry, S. C.

Lewis M. Carpenter, president and treasurer of Kinston (N. C.), Mills, Inc., has become associated with the fine and fancy goods department of Southeastern Cottons, Inc., as a mill technician.

Robert Wenger, of Bigelow Sanford Carpet Co., was the general chairman for the annual outing of the New England Carpet Club of Boston, which was held Aug. 19 at the Pemberton Inn, Pemberton, Mass.

G. Blair Gordon has been elected president of the Dominion Textiles Co. and Montreal Cottons, Ltd., Montreal, Canada, succeeding his father the late Sir Charles Gordon.

COMBED YARN SPINNERS ELECT

At the annual meeting of the Southern Combed Yarn Spinners Association, Gastonia, N. C., Sept. 7, the following officers were elected: President, J. Harold Lineberger, Acme Spinning Co., Belmont, N. C.; first vice-president, Major S. W. Cramer, Jr., Cramerton (N. C.) Mills; second vice-president, L. L. Hardin, Hampton Spinning Co., Clover, S. C.; treasurer, T. L. Wilson, Ruby Mills, Gastonia, N. C. Mildred G. Barnwell was re-elected executive secretary. J. C. Roberts, retiring president, was appointed the chairman of the executive committee.

Sir Herbert Holt was elected chairman of the board.

J. W. Schwab has been elected president of the United Merchants & Manufacturers, Inc., New York, succeeding the late Homer Loring. **A. Harry Feldman** was elected vice-president and **Mervin R. Haskel,** treasurer. **Louis A. Keidel** is chairman of the executive committee.

R. D. Harvey, agent for the Pepperell Mills, Lindale, Ga., has been appointed a member of the State Board of Regents by Governor Rivers of Georgia.

Thomas Platt, Swansea; **Godfrey de Tonnancour, Antone Souza,** and **Raymond F. Morton,** of Fall River, Mass., have been sworn in as new trustees of the Bradford Durfee Textile School, Fall River.

Emanuel J. Weil, formerly sales manager of the Van Raalte Co. has become vice-president of the Archer Hosiery Mills, Columbus, Ga. Mr. Weil will be in charge of Archer's sales and distribution with offices in New York.

J. A. Cassada, formerly assistant manager of the Roanoke Mills Co., Roanoke Rapids, N. C., has been appointed superintendent of the Hartsville (S. C.) Cotton Mills.

Frank R. Iler, connected for several years with Callaway Mills, LaGrange, Ga., has been promoted in that organization to position of supervisor of yarn sales.

Robert J. Cheatham, now in charge of cotton utilization research for the Bureau of Agricultural Economics, is to head

the cotton processing division of the Southern Regional Research Laboratories at New Orleans, La., set up under a program authorized by Congress for the Department of Agriculture. **Paul R. Dawson,** now senior chemist of the soil fertility division of the Bureau of Plant Industry, has also been assigned to the Southern Regional Research Laboratory.

William Bennett, knitter, retired on his 80th birthday, after 65 continuous years of knitting. For the last 39 years he has been connected with the Kraemer Hosiery Co., Nazareth, Pa. He operated the first Reading full-fashioned machine sold to the Kraemer Company in 1900. He was born in Leicestershire, England, and is a nephew of the illustrious William Cotton, inventor of the fashioning mechanism for the full-fashioned knitting machine.

Lucius R. Eastman, chairman of the board of the American Arbitration Association, New York, has appointed five textile men to the National Panel of Arbitrators as follows: **Richard J. Steffens,** president, Boston (Mass.) Duck Co.; **Ames Stevens,** treasurer, Ames Worsted Co., Lowell, Mass.; **C. A. Callahan,** general manager, Millbury (Mass.) Woolen Co.; **Ralph S. Lees,** manager and superintendent, Ardross Worsted Co., Philadelphia; **Allen C. Lees,** president, Ardross Worsted Co., Philadelphia.

William H. Carnoe, vice-president and general manager of Lymansville (R. I.) Co. for last six years, has resigned to become resident manager of Norwich (Conn.) Mills of the American Woolen Co. He is succeeded at Lymansville by **William Murphy.**

Royal P. White, for many years agent of Stirling Worsted Co., Lowell, Mass., and lately with Amos Abbott Co., Dexter, Maine, has become resident manager of the Vassalboro Mill of the American Woolen Co., North Vassalboro, Maine.

I. B. Davies, treasurer, Bradley Knitting Co., Delavan, Wis.; **Armin Rosenberg,** Reliable Knitting Works, Milwaukee, and **L. C. Wemple,** Marinette (Wis.) Knitting Mills, were elected directors from the Western District, Knitted Outerwear Association to the national body, at the semi-annual meeting Aug. 11. Alternates named are **H. H. Newberger,** Royal Knitting Mills, and **S. Weiner,** Mode Knitting Mills, both of Chicago, and **Max Karger,** Eagle Knitting Mills, Milwaukee.

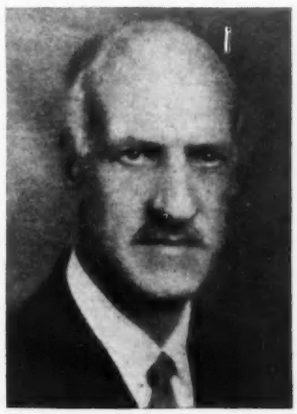
Leverett Saltonstall, governor of Massachusetts, has nominated as trustees of the New Bedford Textile School **William E. G. Batty,** secretary of the New Bedford Textile Council; **Manuel Silva,** secretary of the New Bedford Yarn Finishers' Union, both reappointed; **John F. Glennon,** superintendent of Quissett Mills,

HIS SCHOOL INSTALLS WOOLEN UNIT

Dean Thomas Nelson, head of North Carolina State College Textile Department makes news again this month with his announcement that a complete woolen unit will be installed in the college's new concrete fireproof Textile Building. This is the first school in the South to install woolen equipment. The new unit will be supplied by Davis & Furber Machine Co. of North Andover, Mass.

Dean Nelson, who has been with N. C. State College for 38 years, was born in Preston, England, 1872, and was educated there at Harris Institute. After coming to America he worked in the Ponemah Mills, Taftville, Conn.; Merrimack Mills, Lowell, Mass.; and others. He came to North Carolina from Lowell Textile Institute, in 1901 and has been dean of the Textile School at "State" since 1924.

He has served the textile industry in a national capacity many times as commercial agent for U. S. Bureau of Manufactures; as special agent of, and expert adviser to, the U. S. Tariff Commission. He was an honor guest at a recent luncheon of the Textile Square Club in New York. From New York, he continued a tour of textile centers of the East and Canada, returning to Raleigh late in August.



Dean Thomas Nelson

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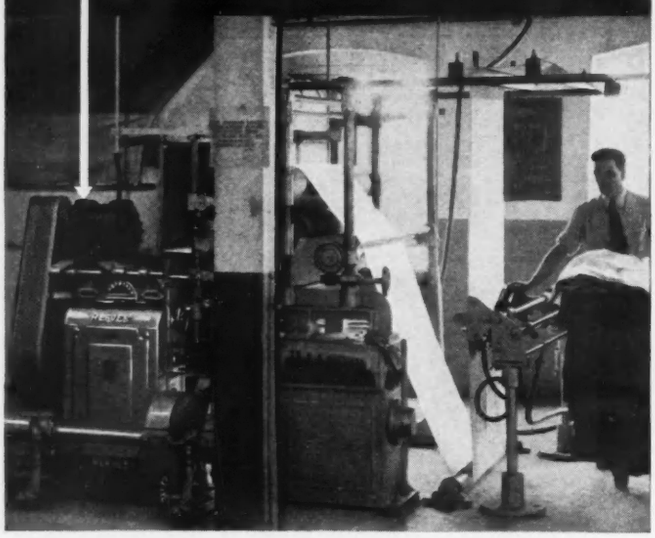
THE TEXTILE INDUSTRY'S

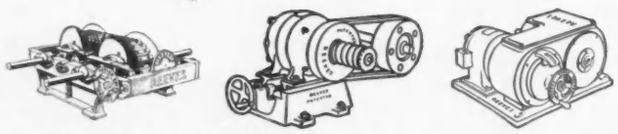
Approved Method

OF SYNCHRONIZING MACHINE SPEEDS...



REEVES transmissions were used exclusively throughout the experiments and developments which led to the perfection of sanforizing, and today leading builders of sanforizing equipment, as shown above, use REEVES transmissions to maintain uniform tension on cloth as it is fed from section to section—through feeding rolls, tenter frame, intermediate feed and finishing section. In fact, range finishing, as practiced in the industry today, is made possible by REEVES automatic control which synchronizes speeds of machines in the range and controls tension between sections. Write for Catalog G-384 describing these and other uses for REEVES Speed Control in the textile industry. REEVES PULLEY CO., Dept. W, Columbus, Ind.

THE 3 BASIC REEVES UNITS



Left to right: TRANSMISSION provides infinite speed adjustability over wide range, 2:1 to 16:1 inclusive; modern, compact, open and enclosed designs . . . VARI-SPEED Motor Pulley, simple, direct drive for requirements from fractional to 15 H.P.; 3:1 range . . . MOTODRIVE combines motor, speed varying mechanism and reduction gears.

Reeves

SPEED CONTROL

NEWS ABOUT MEN

all of New Bedford; **Harry T. Perkins** of Fairhaven, sales manager of Lambeth Rope Corp, and **Albert Ruth** of South Dartmouth, plant manager of New Bedford Rayon Co.

Ulysses J. Lupien, manager of the industrial relations division of Pacific Mills, Lawrence, Mass., has been appointed director of the Massachusetts Civil Service Division for a five-year term beginning Sept. 18. He was chosen from 115 applicants.

Robert J. Kelly of Calgary, Alta., was recently named sales manager of Carl Stohn of Canada, Ltd., Granby, Que.

J. M. Gregg, at one time secretary of the Southern Textile Association, who is now private secretary to Capt. Elliott Springs, president of Springs Cotton Mills, Fort Mill, S. C., as noted in these columns last month.

Maurice Holt, formerly with the sales department of J. W. Valentine Co., has become associated with the sales department of Erlanger (N. C.) Cotton Mills Co., and will act as stylist for spun rayons.

M. L. Hall, who has been connected with Burlington Mills Co., Greensboro, N. C., for the last seven years, has resigned to accept an executive position with Gilmore Plant & Bulb Co. at Julian, N. C.

B. B. Comer, Third, son of the late J. Fletcher Comer, an official of the Avondale Mills, Birmingham, Ala., who has been associated with the mills in an official capacity, has resigned to enter other work.

T. M. Forbes, of Atlanta, secretary of the Cotton Manufacturers Association of Georgia, spoke Aug. 3 before a luncheon meeting of Griffin, Ga., Rotary Club on "Taxes." He was introduced by **John H. Cheatham,** of Griffin, president of the Georgia-Kincaid Mills, and a former president of the Cotton Manufacturers Association of Georgia.

Rodgers Dayvault, formerly in the treasurer's office of Cannon Mills Co., Kannapolis, N. C., has been made secretary and assistant treasurer of Alexander Mills, Forest City, N. C.

Abner Nash will become production manager for the group of mills headed by Walter S. Montgomery, Spartanburg, S. C, Mr Nash terminated a seven-year service with Alexander Mills in order to take his new position.

Gustave G. Staude has resigned as manager of Penn-Carol Hosiery Mills, Concord, N. C., to become assistant manager of Hoover Hosiery Co., also of Concord. Mr. Staude will be succeeded at the Penn-Carol plant by **E. S. Towery.**

W. P. Hamrick, superintendent of Hampton Division, Pacific Mills, Columbia, S. C., has been elected vice-president of the Columbia Chamber of Commerce.

Gustav G. de Tonnancour, purchasing agent of Regent Knitting Mills Ltd., St. Jerome, Que., was recently appointed plant manager of the same firm, succeeding **L. Marcoux,** resigned.

John R. B. Hawes, general manager of the Icard (N. C.) Cordage Co., for the past three years, on Sept. 1 assumed new duties in the headquarters office of the Samson Cordage Works, with which the Icard plant is associated. **R. Harper Singleton,** superintendent of Icard Cordage Co., has been promoted to general manager.

Clifton C. Foil, of New York, has been named general superintendent of Musgrove Knitting Co., Pittsfield, Mass. President of the company is **Charles K. Ferry;** vice-president, **Allen H. Bagg;** treasurer, **Albert W. Wood.**

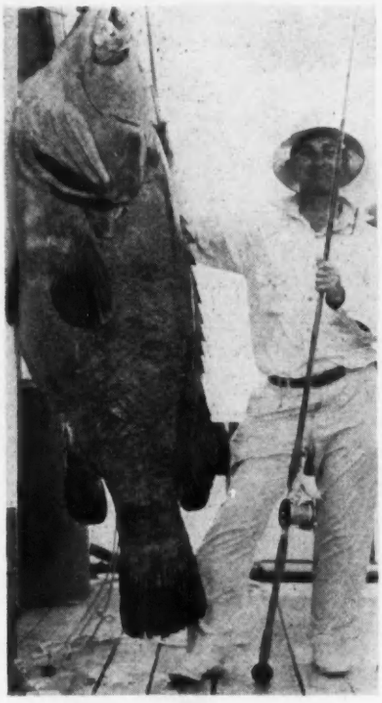
Robert Bain, honorary president of the Ontario Section, Canadian Association of Textile Colorists and Chemists, and for many years head dyer at Mercury Mills, Hamilton, Ont., recently retired on pension, but is still to be on the firm's consulting staff.

James Y. Potter of New Bedford, Mass., has been named assistant designer with the Wauregan Quinebaug Mfg. Co., Wauregan, Conn.

Leonard Birtwistle, of New Bedford, Mass., has been appointed designer for Ashland Mills, Jewett City, Conn.

Joseph Scanlan has succeeded **George Bidwell** in charge of finishing at Holyoke (Mass.) Worsted Co.

Edwin M. Rock, for a number of years sales manager of



Ocular Evidence—This 550 lb. sea bass was taken early in August by Howard McKenna, superintendent, New Braunfels (Tex.) Textile Mills, off the coast near Galveston. Mr. McKenna, is shown in the picture with the light line which hooked and landed the big fish.

Post & Sheldon Corp., has been appointed sales manager of the rayon greige goods department of the Riverside & Dan River Cotton Mills, New York.

F. Eugene Ackerman has resigned as vice-president of Julius Forstmann Corp., New York, and as assistant to Julius Forstmann, chairman of the board of the Forstmann Woolen Co., Passaic, N. J. Mr. Ackerman has resumed his profession of merchandise and public relations counsel having opened offices at 285 Madison Ave. He was with the Forstmann organization for 16 years, prior to which he was engaged in public relations and magazine work, having been public relations counsel to the government of Poland and an organizer and first secretary of the American-Polish Chamber of Commerce.

J. Bruce McCullough has resigned his connection with John F. Street Co., cotton yarns, Philadelphia.

William L. Pierce, a former president of the National Association of Finishers of Textile Fabrics, has resigned as sales manager for the Newburgh (N. Y.) Bleachery.

Harry Bresett has resigned as overseer of dyeing at Webster (Mass.) Mills of American Woolen Co., and has assumed a similar position with Neponset Woolen Co., Canton, Mass.

Harry E. Benson, formerly with Monument Mills, has joined the sales staff of Callaway Mills, New York.

Samuel Holt, retired professor of designing of New Bedford (Mass.) Textile School, where he taught for 38 years, was guest of honor recently at a dinner given by the New York Chapter of the Alumni Association of the New Bedford Textile School.

Albert J. Malley, superintendent of wet and dry finishing at Arlington Mills, Lawrence, Mass., has resigned to accept a position with the Atlantic Mills of A. D. Juilliard & Co., Providence, R. I. He is succeeded at Arlington by **Walter H. Wood**, formerly his assistant.

Everett Borden has joined the Plymouth Finishing Co., Fall River, Mass. as superintendent of finishing.

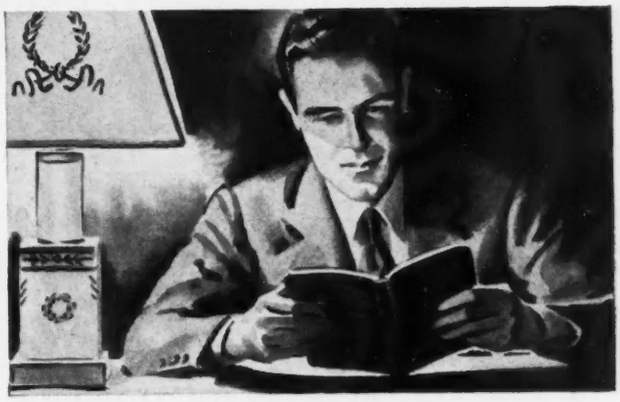
Clarence C. Gallman of the Gayle Plant of Springs Cotton Mills, Chester, S. C. has been promoted to assistant overseer of weaving in No. 1 mill.

J. L. Adams, formerly superintendent of Whitney Mfg. Co., is now with Gaffney (S. C.) Mfg. Co.

James Ballock has been made superintendent of Renfrew Bleachery, Travelers Rest, S. C.

William White, formerly of Gotham Silk Hosiery Co., has been appointed superintendent of the Wayne Knitting Mills, Fort Wayne, Ind., succeeding **John Archer** who has accepted a position in Sherbrooke, Canada.

J. C. Clark has become assistant overseer of weaving at the Springstein plant of Springs Cotton Mills, Chester, S. C., succeeding **D. B. Hammonds**,



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☐ Cotton Manufacturing ☐ Chemistry
☐ Woolen Manufacturing ☐ Business Management

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☐ Air Conditioning and Cooling	☐ Diesel Engineering	☐ Radio ☐ Refrigeration
☐ Architectural Drafting	☐ Electrical Engineering	☐ Sanitary Engineering
☐ Architecture	☐ Electric Lighting	☐ Sheet Metal Work
☐ Auto Elec. Technician	☐ Fire Bosses	☐ Steam Elec. Eng'ring
☐ Auto Technician	☐ Foremanship	☐ Steam Engineering
☐ Aviation Engineering	☐ Heating	☐ Steam Fitting
☐ Boilermaking	☐ Heat Treatment of Metals	☐ Structural Drafting
☐ Bridge Engineering	☐ Highway Engineering	☐ Structural Engineering
☐ Building Estimating	☐ House Planning	☐ Surveying & Mapping
☐ Chemistry	☐ Machinist	☐ Telegraph Engineering
☐ Civil Engineering	☐ Mechanical Drafting	☐ Telephone Work
☐ Coal Mining	☐ Mechanical Eng'ring	☐ Toolmaking
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☐ Bookkeeping	☐ Cost Accounting	☐ Salesmanship
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	☐ French	☐ Stenog. and Typing
		☐ Traffic Management

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City.....*State*.....

Present Position.....

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A Speedy, Economical Surface-Active Agent!

. . . . . and here's what it will do *for you!* As a wetting-out agent it will act faster and more satisfactorily than any other product of its type. It will save you time . . . . cost you less. Surfax W.O. can be used successfully on all fibers. Test it by Draves Method or in production, and you will find these claims more than true.

In sanforizing, Surfax W.O. is unequalled in wetting-back ability, and will withstand high temperatures . . . Claimed by many as the fastest and most suitable product on the market today. And as a softener, besides softening, it will give your cloth exceptionally high absorbency. It never turns rancid in storage.

Write for trial quantity for test.

E. F. HOUGHTON & CO.

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Southern Division Office and Warehouse
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NEWS ABOUT MEN

who has resigned, and gone to Balfour (N. C.) Mills.

J. M. Gayle has become superintendent of Ross Fabrics, Inc., Normandy, N. C., succeeding **J. L. Sherrill.**

Arthur Nuttall, has been promoted from second shift superintendent Goodyear-Decatur (Ala.) Mills to assistant superintendent of Goodyear-Clearwater Mills, No. 1, Cedartown, Ga., Mr. Nuttall was transferred to the Decatur plant from the position as second hand of carding Goodyear Fabric Corp. Devon plant, New Bedford, Mass., about three years ago.

Julian Reid, has been transferred from the efficiency department of Goodyear-Clearwater Mills, No. 1, Cedartown, Ga., to the position as second shift superintendent of the Goodyear-Decatur (Ala.) Mills.

Stanley Black has arrived in Chester, S. C., from Lancaster, S. C., where he has been associated with the Springs Cotton Mills, and is looking after the work of **A. H. Robbins,** general manager of the three plants of the company at Chester, who has been sick.

J. Arnold Waters has been promoted to third shift second hand of carding at the Springs Cotton Mills, No. 1, Fort Mill, S. C.

Homer L. Lucado has been promoted from the overhauling crew to roving section man at Springs Cotton Mills No. 1, Fort Mill, S. C. Mr. Lucado was formerly with the erection force of the Whitin Machine Works.

Walter W. Bricka has resigned as general manager of Monument Mills, Great Barrington, Mass. Mr. Bricka's plans have not as yet been announced.

Gustave G. Staude has resigned as manager of Penn-Carol Hosiery Mills, Concord, N. C., and has become assistant manager of Hoover Hosiery Mills, Concord.

W. B. Cozart has resigned as superintendent of Greenville (N. C.) Spinners, Inc., and has been succeeded by **T. F. Cuddy.**

J. L. King has become superintendent of Central and Catherine units of Avondale Mills, Sylacauga, Ala.

Henry Harrison has become overseer of finishing at the Taylor unit of Bibb Mfg. Co., Reynolds, Ga.

William Barr Todd, overseer at Piedmont Mills, Greenville, S. C., who has spent 40 of his 54 years as a cotton mill employe, in Anderson, Greenville and Union counties, was appointed member of the South Carolina Industrial Commission, which administers the workmen's compensation law, by Governor Maybank recently.

J. T. Howell has been named superintendent of Stowe Mills Inc., McAdenville, N. C.

H. L. Hearman has been named superintendent of Hill Spinning Co., Roseboro, N. C. succeeding **J. F. Allen.**

L. C. Finley has been made superintendent of Pilot Mills Co., Raleigh, N. C. succeeding **J. V. McCombs.**

C. D. Kent has become superintendent of the Aponaug Mfg. Co., Winona, Miss., succeeding **F. B. McDonald.**

William Tobin has succeeded **Henry Bressette** as overseer of dyeing at Webster (Mass.) Mill. Mr. Tobin was formerly with Blackinton (Mass.) Woolen Co.

Earl Duke, who was formerly with Riverdale Mfg. Co., has been made assistant to **A. E. Ruff,** manager of the drapery department, Callaway Mills, LaGrange, Ga.

N. G. Glattfelter is now superintendent of Queen Anne Mills, Ellenboro, N. C.

Z. Boyce Mangum has been appointed superintendent of Avondale Mills, LaFayette, Ala., succeeding **V. A. Mims,** who has been transferred to the superintendency of the Sycamore, Ala., plant of the same company.

S. J. Holmes has been promoted to assistant superintendent of Moultrie (Ga.) Cotton Mills.

Elbert Pride has become superintendent of the Taylor plant of Bibb Mfg. Co., Reynolds, Ga., having been promoted to this position from that of head of the weaving department.

O. G. Moorehead, who has been superintendent of Mansfield Mills, Inc., Lumberton, N. C., has been transferred to the superintendency of Jennings Cotton Mills of the same place. **S. D. Byrd** of Rock Hill, S. C., succeeds Mr. Moorehead at Mansfield Mills, Inc.

H. R. Williams has accepted the position of superintendent of Bogle-Watkins Corp., Greensboro, N. C.

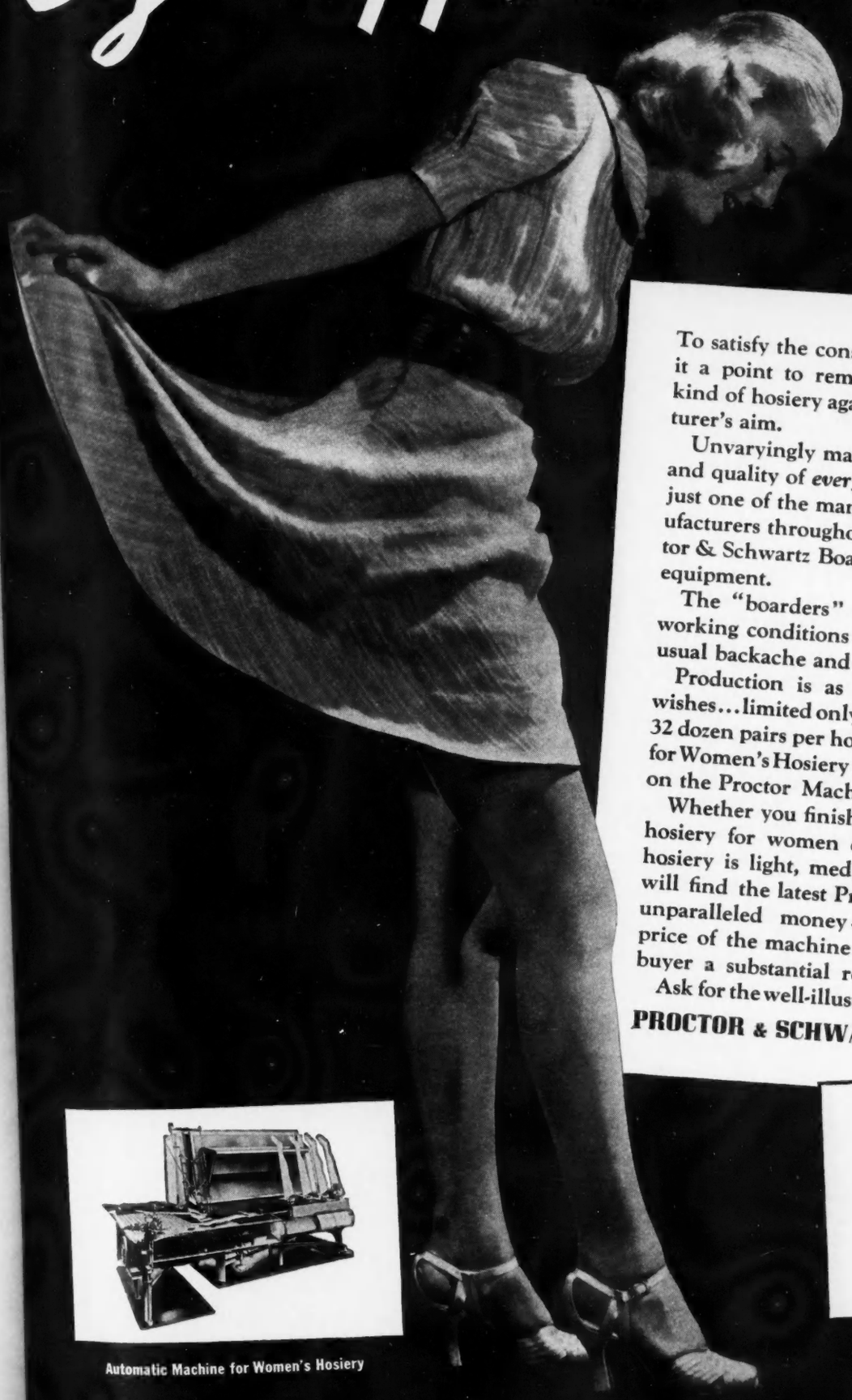
Ralph J. Schwarz has relinquished his duties as vice-president and general manager of Artcraft Silk Hosiery Mills, Philadelphia, Pa., and has sold his interest in the mills.

Harold M. Clark, who has been production manager of the Sally B plant No. 2 of Avondale Mills, Sylacauga, Ala., has been appointed superintendent of the same plant.

J. Gaius Halsey, former superintendent at William Skinner &

"Eye-Appeal"

Makes her buy the same kind again



To satisfy the consumer so well that she makes it a point to remember and ask for a certain kind of hosiery again and again is the manufacturer's aim.

Unvaryingly maintaining perfect appearance and quality of *every* pair of stockings or socks is just one of the many reasons why hosiery manufacturers throughout the world recognize Proctor & Schwartz Boarding Machines as the ideal equipment.

The "boarders" like it for the comfortable working conditions it offers by eliminating the usual backache and eyestrain.

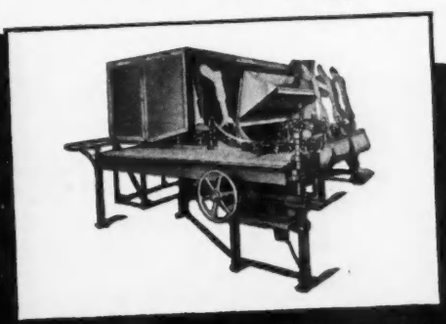
Production is as high as the manufacturer wishes... limited only by the mechanical speed of 32 dozen pairs per hour on the Proctor Machine for Women's Hosiery and 52 dozen pairs per hour on the Proctor Machine for Men's Half Hose.

Whether you finish seamless or full fashioned hosiery for women or men, or whether your hosiery is light, medium or heavy weight, you will find the latest Proctor Boarding Machines unparalleled money-saving equipment. The price of the machine is such that it assures the buyer a substantial return on his investment.

Ask for the well-illustrated descriptive bulletin.

PROCTOR & SCHWARTZ · INC · PHILADELPHIA

Automatic Machine for Women's Hosiery

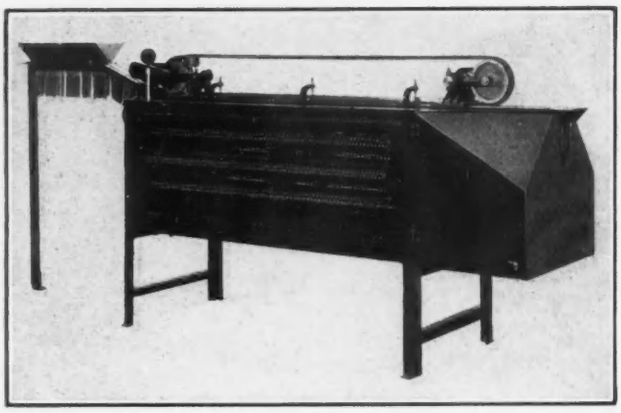


Automatic Machine for Men's Half Hose

Proctor & Schwartz BOARDING MACHINES

MODEL L

Quill Stripper



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RAYON AND SILK

The Terrell Model L Air Cleaning Machine has proven its ability to clean Rayon and Silk quills in the most efficient and economical manner known to the Textile Industry. Approximately fifty installations prove this point.

CLEANS 100 TO 140 QUILLS PER MINUTE

The machine speed varies from 100 to 140 per minute, depending to some extent on the condition of the quills and the type of yarn.

PREVENTS DAMAGE TO QUILLS

There is no possibility of damage to quills, because they do not come in contact with anything except air during the cleaning process.

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For BETTER, FASTER and more ECONOMICAL Quill cleaning

Consult

The Terrell Machine Co., Inc.

CHARLOTTE, NORTH CAROLINA

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Luther Pilling, Danielson, Conn.....N. E. & Canada
E. W. S. Jasper, Inc., Elizabeth, N. J...Penn. & N. J.
Geo. Thomas & Co., Manchester, Eng..European Agt.

NEWS ABOUT MEN

Sons silk mill in Holyoke, Mass., has resigned his post at the Newmarket Mill in Lowell, Mass.

Miss Opal Hill, who was graduated from the Textile Engineering School of the Texas Technological College, Lubbock, Tex., this year, has become associated with Wellington Sears Co., New York.

J. V. McCombs has resigned as superintendent of Pilot Mills Co., Raleigh, N. C., and has been succeeded by L. C. Finley.

B. W. Bingham, formerly superintendent of Virginia Mills, Swepsonville, N. C., has become associated with Brookside Mills, Knoxville, Tenn., in a similar position.

Chester L. Eddy has resigned as superintendent of the finishing plant of Renfrew Bleachery of the Brandon Corp., Travelers Rest, S. C.

C. C. Moore has been appointed head of the loom fixing department of the Springstein plant of Springs Cotton Mills, Chester, S. C., succeeding **D. B. Hammond**, resigned.

Everett Bordon, formerly boss finisher, Farr Alpaca Co., Holyoke, Mass., has taken a position as superintendent of finishing at the Plymouth (Mass.) Finishing Co. Mr. Borden will develop new finishes for the dress and underwear trades.

J. W. Christopher has become head loom fixer at the No. 2 plant of Chadwick-Hoskins Co., Charlotte, N. C.

F. M. Duncan has become superintendent of the hosiery mill of Golden Belt Mfg. Co., Durham, N. C.

Felix Thurecht has become superintendent of Elizabeth City (N. C.) Hosiery Co., succeeding **T. L. Freeman.**

W. L. Steele, Jr., has become general manager of Riverdale Mills, Enoree, S. C. He was formerly treasurer of Locke Cotton Mills, Concord, N. C.

W. E. Moore has become purchasing agent for Spartan Mills, Spartanburg, S. C., succeeding **B. F. Zimmerman**, resigned.

W. S. Swain has become superintendent of Thomas Mills, Inc., High Point, N. C.

Capt. Elliott Springs' private car which was illustrated in these columns last month because now being used by him as his executive office, was photographed for us by the Nichols Studio, Chester, S. C.

Obituary

Tomitaro Hara, 73, former president of Hara & Co., Yokohama, Japan, died there Aug. 15. Mr. Hara had been intimately connected with the silk trade for most of his business life.

Josiah M. Lasell, 75, of the fourth generation of the family which founded Whitinsville, Mass., and built the Whitin Machine Works, died Sept. 7.

Gustav W. Paulson, 63, associated since 1929 with Cluett, Peabody & Co., and for 10 years active in the development of the Sanforizing process, died in New York July 31.

Sydney R. Bliss, 59, president of the Bliss Throwing Co., Scranton, Pa., died suddenly Aug. 14. His father founded the business in 1896.

Joseph Wien, who before his retirement in 1931 was head of Joseph Wien & Sons Co. and the Lawrence Silk Mills of Paterson, N. J. and Bethlehem, Pa., died at Miami Beach, Fla.

Francis J. Pelzer, 85, retired Charleston, S. C., capitalist, died Aug. 22, in Asheville, N. C. The town of Pelzer, S. C. was named for his father. Mr. Pelzer had been director of Pelzer, Clifton, Piedmont and other cotton mills.

William Joshua Swink, 85, China Grove, N. C., vice-president and director of Cannon Mills Co. and Wiscassett Mills Co., Albemarle, N. C., and father of **Hearne Swink**, secretary of the Cannon Mills Co., died at Salisbury, N. C., Aug. 23.

Samuel Anthony Fortson, Sr., Macon, Ga., formerly president of Enterprise Mfg. Co., Sibley Mfg. Co., and Augusta Factory, Augusta, Ga., died at his summer home on the Isle of Palms, S. C., July 23.

Otis C. Moore, vice-president and sales manager of Polly Prentiss, Inc., Sumter, S. C., bedspreads manufacturers, and president of Chenille Bedspread Association of America, died in Sumter, Aug. 16.

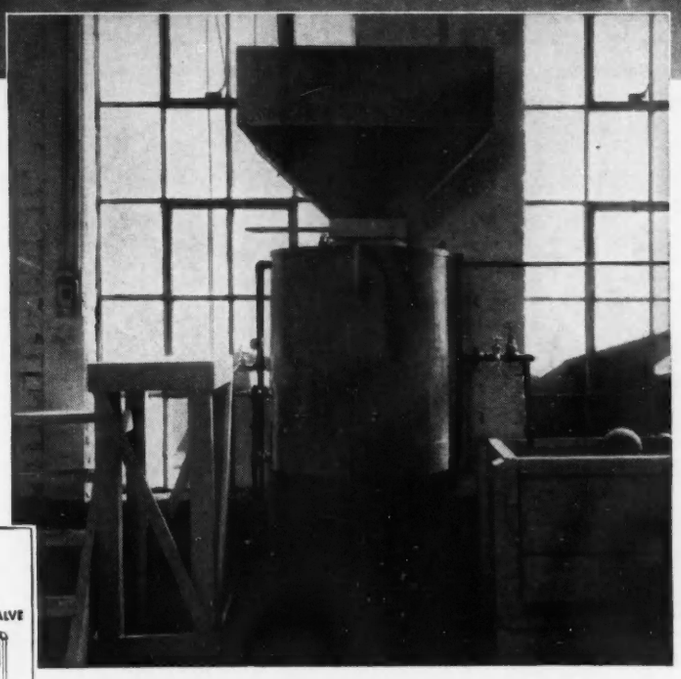
Harry M. Parks, 68, president of the M. H. Parks Bobbin Co., Winchendon, Mass., died suddenly in that town July 31.

Monroe D. Anderson, 66, president of Anderson, Clayton Co., one of the world's largest cotton firms, died in Houston, Tex., in early August.

Charles Harris Kluttz, 64, president of the Klumac Mill,

Check THE OPERATING ECONOMY MOST IMPORTANT TO YOU

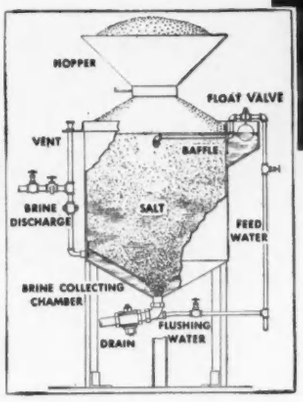
✓ **TIME SAVING**
✓ **LABOR SAVING**
✓ **SALT SAVING**



The Lixate installation in the picture here, is in active use by the Waldensian Hosiery Mills, Inc., of Valdese, N. C.

AUTOMATIC OPERATION

International Rock Salt of the recommended grade is placed in a hopper. It flows by gravity to the Lixator. Water enters through a spray nozzle at the top, dissolves the salt without agitation, and becomes fully saturated brine. The brine is self-filtered, and then rises within the collecting chamber to a discharge pipe. The entire operation is automatically controlled by a float valve. Pure, crystal clear brine is produced without supervision, at no cost for power, and with no labor except to keep the salt hopper filled.



BRINE IN THE TEXTILE MILL

Salt brine has for years been essential in the textile mill for the regeneration of zeolite water softeners. It has become increasingly important in recent years due to rapid progress in the use of brine in the dye bath. For many fabrics, brine made from salt (sodium chloride) is now being used instead of the more costly Glauber's Salt (sodium sulfate). Wherever brine is used, The Lixate Process makes its important savings.

NO matter which advantage of The Lixate Process For Making Brine appeals to you most, the minute it is in operation in your plant you get *all* of its other advantages, too. You save time, labor and salt — and all of these mean important savings in dollars and cents.

You save time because The Lixate Process is wholly automatic. Brine is always on hand, ready for use at the turn of a tap. You save labor costs in three ways—in handling salt, in making brine, and in distributing brine. You save salt—for users report savings up to 10% and 20% in the amount of salt required.

Economy is not the only reason why textile mills large and small are now using Lixate Brine. It is a better brine. Made from recommended grades of International Rock Salt, Lixate Brine is self-filtered to be crystal clear, bacteriologically clean, and so chemically pure that it exceeds even the requirements of leading food packing authorities. It is always uniform for it is always fully saturated—and can be easily diluted to any desired strength by simple gauge markings in the storage tank.

Purity, cleanliness and uniformity help to secure level dyeing. Absence of undissolved particles and foreign matter help to avoid streaking and spotting. Many mills have found that they can improve quality as well as cut costs with Lixate Brine. Write for a copy of The Lixate Book, or ask to have a Lixate Engineer call and explain how you can make these important savings in your own mill.

For all types of salt . . .

turn to International. Its three great mines produce every type and grade of Rock Salt. Its three modern refineries produce all kinds of granulated salt (vacuum refined) and flake salt (grainer process). For authoritative advice concerning the use of salt and salt brine, turn to the Research Department of International Salt Company, Inc. You are invited to submit any salt problem for study and report, with no cost or obligation whatever.

WRITE FOR THIS BOOK!

The Lixate Book does more than describe The Lixate Process in detail. It provides helpful technical information. For instance, a brine table prepared by the Research Department of International Salt Company, Inc., provides data on the density, weight, salinity and other properties of salt brine at all salometer readings. Write for a free copy of this helpful book.

The LIXATE *Process*

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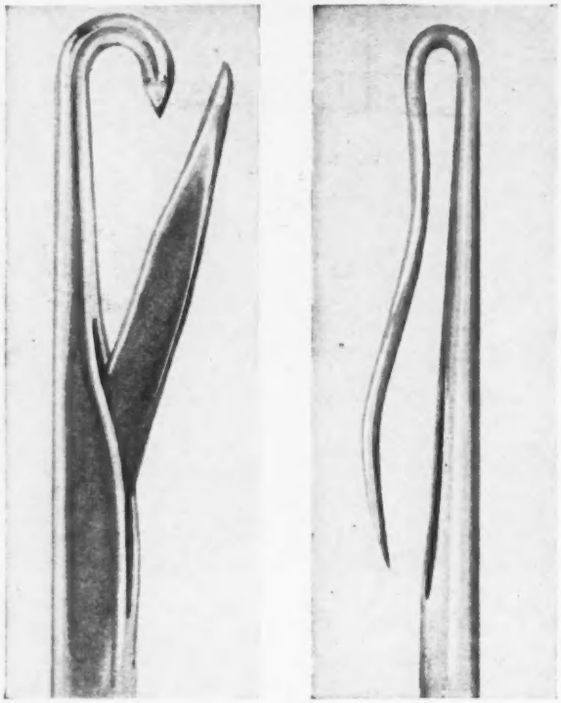
SALES OFFICES: *Buffalo, N. Y.* • *Philadelphia, Pa.* • *Boston, Mass.* *Baltimore, Md.* • *Pittsburgh, Pa.* • *Newark, N. J.* • *New York, N. Y.* *Richmond, Va.* • *New Orleans, La.* • *Cincinnati, Ohio* • *St. Louis, Mo.*

COOPER NEEDLES



Cooper High-Speed Latch Needles with Non-Turnable Rivets: **These are made from a special grade of needle steel which retains its strength during the machining and tempering of the most delicate parts. All tendency of the rivet to turn and loosen (a common trouble in latch needles) is prevented by a specially designed, non-turnable rivet, exclusive with Cooper. The rivet is also designed to separate and hold the cheeks of the needle permanently at the same distance from each other, insuring free movement of the latch. Accurate tempering and careful finishing produce a long-lived, reliable, uniform needle, capable of knitting exceptionally high-grade underwear, outerwear, and hosiery.**

Cooper Spring-Beard Needles: **Ever since its introduction as the first needle of this type made in the United States, the Cooper Spring-Beard Knitting Needle has maintained a position of leadership. Accurate and ingenious machinery converts specially prepared cast-steel wire into Cooper Needles. The manufacturing process includes particularly accurate tempering and rigid individual inspection of each needle. Precision measuring instruments supplement this inspection to insure absolute conformity to size and shape requirements.**

CHARLES COOPER CO., INC.

Bennington, Vermont, U. S. A.

NEWS ABOUT MEN

Salisbury, N. C., for a number of years, died recently.

J. W. McElhannon, superintendent of Stonewall (Miss.) Cotton Mills, and formerly treasurer and plant manager of Durham (N. C.) Cotton Mfg. Co., died in Durham, Aug. 18.

John L. Robinson, 66, for many years superintendent of Minneola plant of the Proximity Mfg. Co., and later superintendent Burlington (N. C.) plant of Aurora Mills, died recently.

William Simms Payne, 83, founder of Payne Cotton Mills, now a unit of Bibb Mfg. Co., Ga., died July 31.

Charles Long, 52, superintendent, employed by the Gastonia Combed Yarn Corp., died Aug. 11, at Gastonia, N. C.

David W. Braggs, 48, superintendent of Mutual Mills of Textiles Incorporated, Gastonia, N. C., for 21 years, died the latter part of July.

John J. Saunders, 50, superintendent of Paola Cotton Mills, Inc., Statesville, N. C., died last month.

Daniel Sweeney, 80, for 52 years bookkeeper and superintendent of the John Hand & Son silk plant in Paterson, N. J., died Aug. 6.

Harry Neuman, 54, retired manufacturer of knitted outerwear and founder of the Prudential Knitting Mills, Philadelphia, died Aug. 9.

F. R. Rentz, 47, silk ribbon manufacturer of Huntingdon Valley, died in Philadelphia, Aug. 12. He was president of the Philadelphia Silk Manufacturers Association.

Moe Levy, 77, a colorful figure in a bygone era in men's clothing business in New York, died at his home in that city on Aug. 18. He was a manufacturer and retailer of men's clothing, and in 1931 celebrated the 50th anniversary of his business.

John L. Farrell, who retired four years ago as sales manager of Hardwick & Magee Rug Co., Philadelphia, after 40 years service with that firm, died Aug. 12. He celebrated his 61st wedding anniversary last April.

Alfred Thomas, 83, an associate of the late Matthew W. Whittall and for a time head of Edgeworth Mills, Worcester, Mass., died at Bournemouth, England, recently.

John H. Hambly, 77, for many years identified as treasurer with Quidnick Mfg. Co., Quidnick Windham (Conn.) Co., and other textile concerns in southern New England, died at Providence, R. I., on Aug. 25.

John R. Booher, 61, for the last 17 years advertising manager of the Cleveland Crane & Engineering Co., Wickliffe, Ohio, died Aug. 16.

David N. Panabaker, former manager of the Forbes Mills, Hespler, Ont., now part of Dominion Woolens & Worsteds, Ltd., and a past president of the Canadian Woolen & Knit Goods Manufacturers' Association, died recently.

Charles H. Ward, 73, once manager of the New England Cotton Yarn Mills, died in Rochester, N. H., Aug. 8.

Arthur H. Abbott, 56, former transformer specialist in the General Electric Co.'s Boston office, and well known in the textile engineering supply field as a manufacturers' representative, died at Winchester, Mass., recently.

Alden Hampdon Vose, 59, a partner in the New York Cotton Exchange firm of Harriss & Vose, died at his home, in Westport, Conn., Aug. 15.

James Gorman, 46, cloth broker with Thompson & Co., New York, died Aug. 7 as result of injuries sustained when he was assaulted and robbed in a New York subway.

John Harmon Coker, 65, formerly superintendent of Parks Textile Mill, Rossville, Ga., died at Athens, Tenn., recently.

Lloyd C. Withers, assistant treasurer, Carolina Textile Corp., died Aug. 7 at Charlotte, N. C.

Vance Clark Blount, 45, superintendent of the mechanical department of Erlanger Cotton Mills, Lexington, N. C., died recently.

William Thomas Bain, 80, Greensboro, N. C., formerly superintendent of Pomona Mills, died Aug. 25.

Charles D. Clark, 79, retired machinist of Sanford (Me.) Mills, who with the late James Clark, perfected the plush loom, died recently in the Henrietta D. Goodall Hospital.

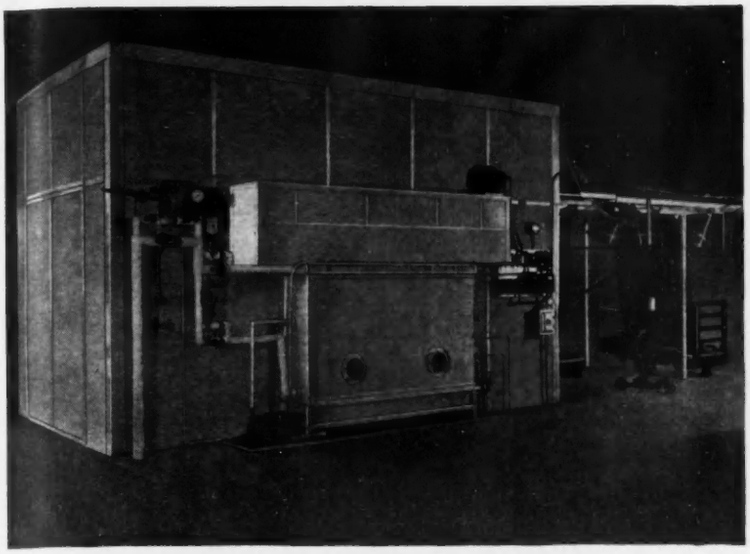
Oscar Henry Hay, 57, superintendent of Mandeville Mills, Carrollton, Ga., died Aug. 20. He had been with the mills for 39 years.

W. R. Widdup, 70, for 25 years an executive of Spartan Mills, Spartanburg, S. C., and for the last 15 years in the machinery business, died Aug. 21.

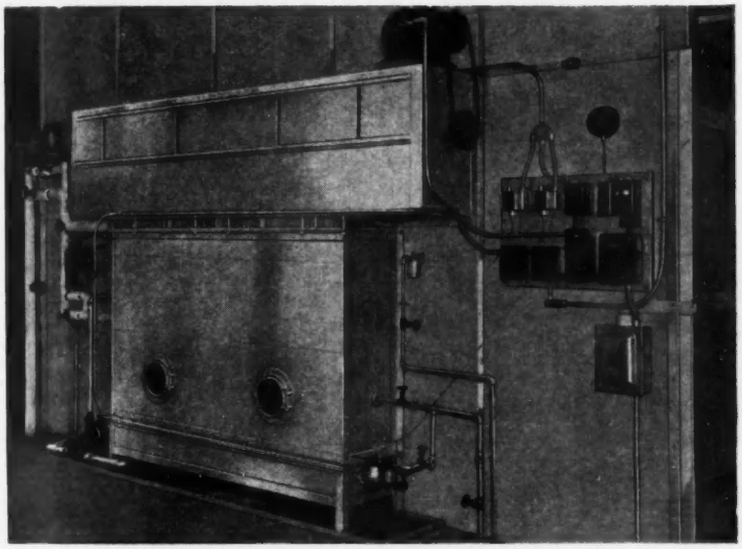
Ben Frank Williams, 78, overseer of the carding department of Chiquola Mfg. Co., Honea Path, S. C., for many years until his recent retirement, died July 29.

Frank H. Painter, 67, for 25 years superintendent of the Hope Webbing Co., Pawtucket, R. I., died at the Jane Brown Hospital in Providence on Aug. 11.

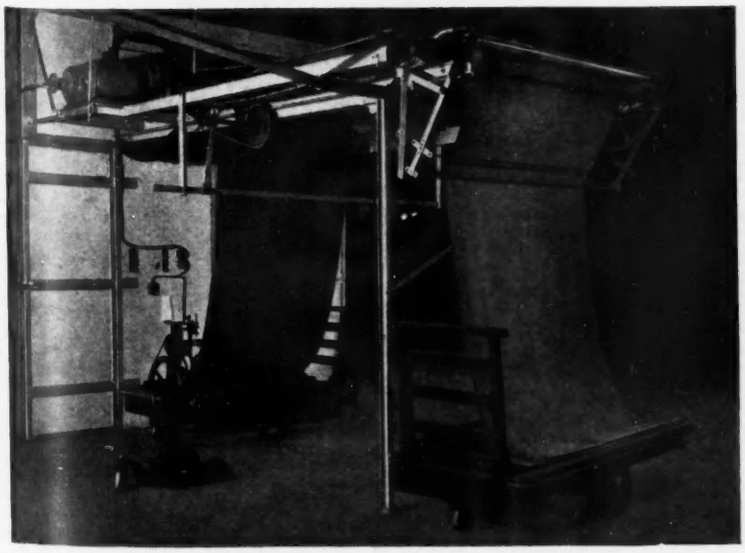
HOW TO RESTORE NATURAL



MOISTURE TO CLOTH AT



30 YARDS PER MINUTE



THE new Hunter Brilsonair Cloth Conditioner, embodying a totally new principle of restoring natural moisture to cloth after finishing, is setting new records for evenness and uniformity, flexibility and production. For example:—

One unit occupying less than 35 feet of floor space, installed in a Massachusetts mill, is conditioning worsted fabrics at 30 yards per minute with absolutely uniform regain and improved finish. In another New England mill, a smaller Conditioner gives comparable results at 25 yards per minute on fabrics ranging from 11 to 32 ounces. Furthermore, it is producing the desired regain within unvarying limits.

The Conditioner comes complete with air conditioning unit, the necessary motors, fans, heating coils, housing and control instruments. You need only wire the motors and bring your steam and water lines to the Conditioner, and you are ready to run.

Any mill man interested in guaranteed evenness of regain at high speeds, reduction of offshade goods, flexibility and uniformity in this important new field, is invited to mail the coupon.

Note: **Hunter Brilsonair Conditioning and Drying Systems, are designed, manufactured and sold jointly by the James Hunter Machine Company of North Adams, Mass., and the Bridges-Wilson Corporation of Boston, Mass. For complete details on room, yarn or stock conditioning, write either company.**

•

Southern Agents: Carolina Specialty Co., Charlotte, N. C.
Western Representative: E. G. Paules, 343 Bendix Bldg., 1206 Maple St., Los Angeles, Cal.

JAMES HUNTER MACHINE CO., North Adams, Mass.

Please send full details on the Hunter Brilsonair Cloth Conditioner.

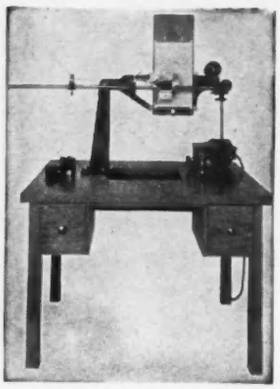
Name .....

Mill .....

Address .....

JAMES HUNTER MACHINE CO., NORTH ADAMS, MASS.

SCOTT TESTERS*



Model IP-2 Serigraph

A recording testing machine sensitive and accurate enough to test single fibers of wool and single filaments of rayon and silk, as well as fine yarns. Equipped with maximum capacity ranges from 5 to 2000 grams.

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We also manufacture other machines up to 2000 pounds.

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WILLIAM WHITMAN COMPANY, INC.
NEW YORK BOSTON PHILADELPHIA CHARLOTTE

TEXTILE MILL NEWS

Georgia-Kincaid Mills, Griffin, Ga., have let general contract to Newton Coal & Lumber Co., Griffin, for one-story addition, 43 x 60 ft. Cost about $20,000, with equipment. J. E. Sirrine & Co., Greenville, S. C., are engineers.

Windville Mfg. Co., carded yarn, Lawrenceville, Ga., has sold its mill buildings and village to the General Shoe Corp., Nashville, Tenn.

Thomaston (Ga.) Cotton Mills have asked bids on general contract for one-story addition for warehouse unit; cost $45,000 with equipment. Robert & Co., Atlanta, Ga., are architects.

Illinois Shade Cloth Co., Chicago Heights, Ill., has let general contract to City Construction Co., Chicago Heights, for third story addition to present two-story and basement mill, 100 x 198 ft. Cost over $50,000 with equipment.

Lockwood Co., Waterville, Me., which expended about $750,000 on modernization during the last three years, reports a saving in manufacturing cost for the fiscal year ended June 30, 1939 of over $250,000. The spindles were cut from 86,000 to 51,000. Net loss after depreciation, $60,770.

Berkshire Fine Spinning Associates, Inc., Fall River, Mass., have negotiations under way for purchase of part of Farr Alpaca Co., Holyoke, Mass., consisting of the 68,000-spindle cotton unit and auxiliary structures.

Merrick Mills of the American Thread Co., Holyoke, Mass., an abandoned mill property seven months ago, is running at capacity. It has been rehabilitated with machinery shipped out of the Westerly, R. I., plant.

Butler Mill, New Bedford, Mass.—This property, now held by the city, is being acquired by Lewis L. Scott, St. Louis, Mo., and associates, who will take title at early date.

Goodyear Fabric Corp., New Bedford, Mass., has begun dismantling its local mill, inactive since early in 1938. A portion of the machinery will be transferred to Goodyear-Clearwater Mills in Georgia, and remainder of equipment sold.

Marvel Mills, New Bedford, Mass., have taken over additional floor space in the Fairhaven Mill No. 2. Headed by Humbert D'Arista as president and general manager, the plant will produce wide pile fabrics made with chenille yarn, with looms capable of turning out cloth up to 30 feet wide. The firm employs 150 persons.

Worthmore Products, Inc., New Bedford, Mass., has been formed as a subsidiary of the recently organized Taber Mill Corp., now operating the former Taber Mill property on two-shifts. New company will specialize in shoe fabrics, adhesive cloths and allied products.

Aponaug Mfg. Co., Yazoo City, Miss., partially destroyed by fire early this year, has moved the undamaged machinery to another unit of the company, and sold the building to the citizens of that city to be used for a warehouse.

White Bros. will close its plant at West Peterborough, N. H. and put the property on the market. Portion of the machinery is being moved to the plant in Winchendon, N. H. The East Jaffrey mills will be consolidated with those in Winchendon.

Pacific Mills reports net profit for first half of 1939 of $59,846 on net sales of $19,957,685, compared with net loss a year ago of $2,246,963 on net sales of $16,003,811.

Pepperell Mfg. Co., reports net for year ended June 30, 1939, of $871,000 on sales of $28,490,000, against net loss of $1,796,169 for previous fiscal year on sales of $26,415,096.

Morowebb Cotton Mill, Dallas, N. C., has installed a complete new electric power system for operation of the mill. The Duke Power Co. installed the large transformers.

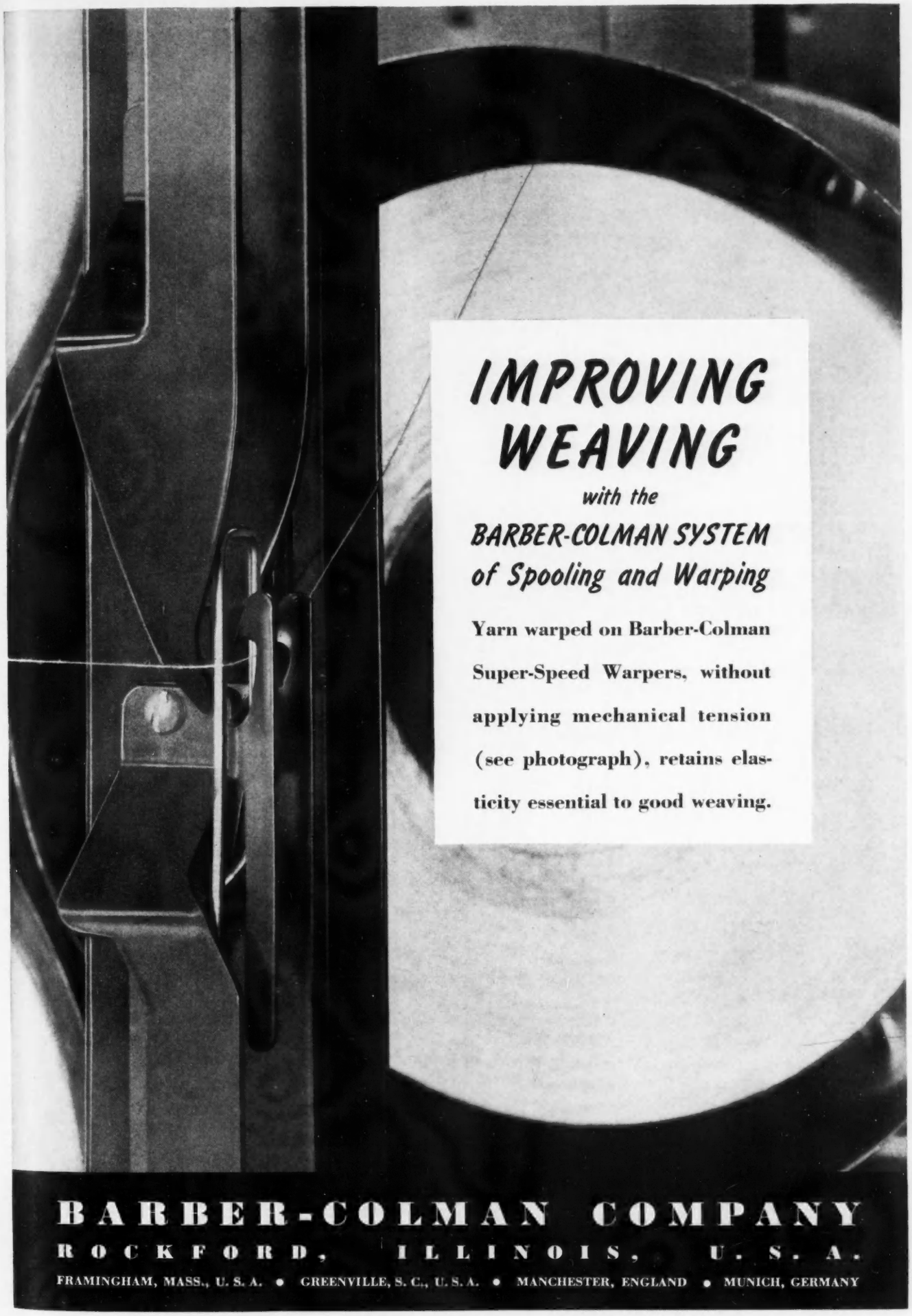
Robinson Yarn Mills, Dallas, N. C., are constructing a new sewer system.

Erwin Cotton Mills, Durham, N. C., have awarded contract to W. L. Jewell, Sanford, N. C., for two one-story warehouse additions, 75 x 90 ft.

Faytex Mills, Inc., Fayetteville, N. C., cotton yarns, has filed a petition for reorganization in the U. S. district court at Fayetteville.

Groves Thread Co., Gastonia, N. C., has offered 100 company-owned houses for sale. Employees of the mill were given first opportunity to purchase them.

Kinston (N. C.) Textile Mills, Inc., are in hands of Richard S. Rogers of Wilmington as receiver. The mill is closed and



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BARBER-COLMAN SYSTEM of Spooling and Warping

Yarn warped on Barber-Colman Super-Speed Warpers, without applying mechanical tension (see photograph), retains elasticity essential to good weaving.

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the property will be liquidated.

Stowe Cotton Mills, Inc., McAdenville, N. C., recently organized to take over former McAden Mills, have completed modernization and installation of equipment, and plant is in operation. Company operates 25,000 spindles on combed yarns.

Yadkin Cotton Mills, Inc., Patterson, N. C., have been organized with capital of $100,000, and plan early operation of mill. G. L. and R. O. Whisenant, Maiden, N. C., head new company.

Spindale Mills, Inc. will be the new name for the old Spencer Mills, Spindale, N. C., under its reorganization plan, approved Aug. 19 by Federal Judge E. Y. Webb.

Stead & Miller Co., Philadelphia, Pa., have taken over the properties of Hartsell Mills Co., Concord, N. C., in which they have had substantial interest. Much of the equipment from the Philadelphia plant of Stead & Miller has been moved to Concord. They manufacture upholstery fabrics. There will be no change in personnel at the Concord plant.

Wilkes-Barre (Pa.) **Lace Mfg. Co.** is curtailing production permanently, and two local mill units are being abandoned.

Williamsport (Pa.) **Narrow Fabrics Co.** is constructing a 2-story, 40 x 104 ft. addition to its plant to cost about $25,000 with machinery and equipment.

Cowpens (S. C.) **Mills** may be reopened following reorganization plan hearing in the federal court.

Springs Cotton Mills, Eureka plant, Chester, S. C., have constructed an addition to the spoolroom to provide additional space for rearranging present equipment. The Springs plant at Fort Mill, S. C., has completed an addition to unit No. 2, measuring 125 x 175 ft., at a cost of $100,000, in which new carding and spinning machinery will be installed. The Lancaster, S. C. plant has begun construction of a top story on the No. 5 unit there, in which spinning machinery will be installed. This plant now contains 236,040 spindles and 7,010 looms, and employs 3,300 operatives.

Laurens (S. C.) **Cotton Mills Co.** has given operatives an opportunity to purchase their own homes. More than 200 dwellings are owned by the mill company.

Nantex Mfg. Co., Saluda, S. C., C. W. Bean, manager, has an expansion program under way and a number of new machines will be installed.

Riverside & Dan River Cotton Mills, Danville, Va., report net profit of $58,496 for the first six months of this year compared to a net loss of $750,712 for the same period last year.

Canadian Cottons, Ltd., is installing a new power unit in its plant at Cornwall, Ont. Main equipment is a water turbine made by Canadian Vickers Ltd., and 400 h. p. Canadian General Electric Co. generator.

Dominion Textile Co. Ltd., has purchased 336 Model X Draper looms for installation in its cotton mill at Magog, Que., for manufacture of 40-inch print cloths.

Thomas Dumont, head of the newly organized Dumo Textiles, Ltd., will erect a plant in Picton, Ont., to begin production in October of a variety of textiles.

C. R. Griffin, of Toronto, Ont., has completed negotiations with the Town Council of St. Marys, Ont., to take over the vacant St. Marys Textile mill for manufacturing cotton and linen towelling.

Wool Mill News

American Fiber Mills, Inc., Stafford Springs, Conn., is installing machinery in the stone mill section of the Rhode Island Woolen Co. of that town and expects operations at this new plant on felts and wadding will start this fall. Incorporators of the company are William Goerneann of Brooklyn, William Maegerie of Tarrytown, N. Y. and Edwin Wanek of New York.

Bigelow-Sanford Carpet Co., Thompsonville, Conn., reports net profit of $617,046 for first six months of 1939, compared with net loss of $1,565,224 for the six months in 1938.

Stanton Worsted Mills, Wilmington, Del., are constructing an addition to double their capacity; cost, $15,000.

Uxbridge Worsted Co., Cedartown and Macon, Ga., is installing a Philadelphia Drying Machinery Co's. tenter frame. Philadelphia company is represented in the South by F. W. Warrington Co.

La Porte-Daniels Woolen Mills, Inc., La Porte, Ind., has filed papers with the Indiana secretary of state changing the name to La Porte-Bachman Woolen Mills, Inc.

Farr Alpaca Co. liquidators have disposed of between $10.-

THE LATEST ADDITION TO THE "AVITEX" FAMILY

"AVITEX" VS

HERE'S a new finishing agent that makes rayons more beautiful to the eye, more luxurious to the touch—"AVITEX" VS! This remarkable new agent creates a rich, full hand—a smooth flowing drape—brighter, more vivid colors.

Rayons finished with "AVITEX" VS not only look better, but give you assurance that they're going to stay that way. The whites stay white—the colors remain bright—even after months in storage. There isn't any danger of losing sales through rancidity, yellowing or unpleasant odors because "AVITEX" VS keeps rayons mill-fresh!

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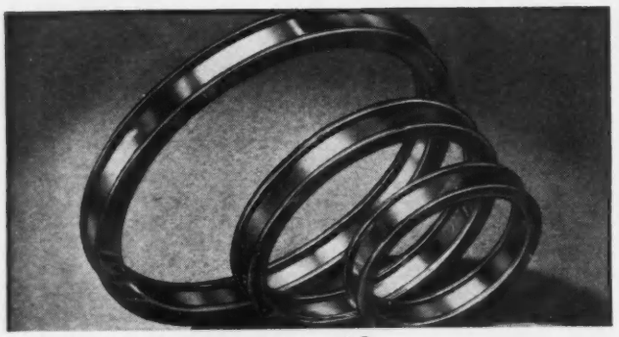
Boston, Mass., Charlotte, N. C., Chicago, Ill., New York, N. Y., Philadelphia, Pa., Providence, R. I., and San Francisco, Calif. Represented in Canada by Canadian Industries, Limited, Box 1260, Montreal, Quebec, and 372 Bay St., Toronto, Ont.



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Accidental Death	Weekly Disability
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T.W.-39

000 and $15,000 worth of machinery from the Holyoke, Mass., plant it has been stated by Donald R. Green, treasurer of the company and chairman of the liquidating committee.

Hodges Carpet Co., Indian Orchard, Mass., has a favorable vote by its stockholders for bankruptcy under the Chandler Act, but company officials stated the action was precautionary and that it is hoped another solution will be worked out for the company's difficulties. RFC holds a $175,000 mortgage on the property.

Jamestown (N. Y.) Worsted Mills have completed a reorganization and it is expected that two-shift operation will be continued.

Mohawk Carpet Mills reports net profit for first six months of 1939 of $516,832 on net sales of $7,146,287.

Smoky Mount Industries, Asheville, N. C., has been granted a North Carolina charter to manufacture and sell textiles, wearing apparel, etc., under an authorized capital of $20,000, of which $600 has been subscribed by Julius Lowenbein, J. A. Patla and N. D. Ayers, all of Asheville.

Chatham Mfg. Co., Elkin, N. C. is constructing a half million dollar addition to the Elkin unit to house the finishing plant which will be moved from Winston-Salem, N. C.

Flock Mfg. Co., Philadelphia, has consolidated its plants in one building at Fourth and Cambria Sts.

Joseph Benn Corp., North Providence, R. I., closed in July may be reopened according to the R. I. State Rehabilitation Commission.

Jefferson Woolen Mills, Knoxville, Tenn., enlarged its dye plant with a $4,000 addition.

Holden-Leonard Co., Bennington, Vt., was sold at auction Aug. 22 to John Clisham of Philadelphia, Pa., for $20,000. His principals will reopen and run the plant, Mr. Clisham has stated. Five-year tax exemption is offered by Bennington to the owner who will operate the mill six months out of the year.

Industrial Felt Co., Ltd., Kitchener, Ont., recently suffered loss estimated at $30,000, in the burning of its plant.

Dominion Woolens & Worsteds has completed removal of its plant from Peterborough to Hespler, Ont., and machinery is in full production.

St. Andrews Woolen Mills, Ltd., St. Andrews, Que., newly incorporated, has taken over an idle plant and will make woolen frieze, cloakings, overcoatings, tweeds, etc. A new power plant is being installed. J. L. Longtin is manager.

Huntingdon Woolen Mills, Ltd., has taken over the plant of the defunct Windsor Silk Mills at Huntingdon, Que. The new mill will produce low-grade fancy woolens. H. Rosckies and A. Wientraub are in charge.

Rayon & Silk Mill News

Benjamin Kahn Ribbon Co., Attalla, Ala., has work under way on extension to the main building, into which the weaving department will later be moved.

Pioneer Parachute Co., Manchester, Conn., has been organized by Cheney Bros, and Floyd Smith, inventor of the "free falling" parachute to manufacture parachutes of the type now used in the Federal air service.

Celanese Corp. of America, Cumberland, Md., has work well under way on the construction of another building, which will cost between $75,000 and $100,000, exclusive of new machinery.

E. I. du Pont de Nemours & Co. have purchased additional acreage at Seaford, Del., adjacent to property on which Nylon plant is being erected, for residences and for driven-well water supply.

Hampton Co., Easthampton, Mass., closed its rayon yarn producing plant permanently Aug. 22, throwing 190 employes out of work. Officials give "unprofitable operation" as the reason for the shutdown.

William Skinner & Sons, Holyoke, Mass., has installed two new C. & K. bobbin-changing automatic 2 x 1 looms, each capable of running 172 picks a minute, in manufacture of silk and rayon crepes. Another new loom, used in making plain fabrics, has been purchased from the Draper Corp. A new slasher has also been installed.

Atlantic Rayon Co., plant in Lowell, Mass., has started production, following installation of machinery, and a general renovation. The Atlantic concern took over some 200,000 sq. ft. of floor space from the Lawrence Mfg. Co.'s plant about three months ago.

National Silk Spinning Co. will discontinue its New Bedford plant, according to word from New York. Efforts are being made to organize a new company to take over the plant.

Use GARDINOL* *for your Christmas Stockings*

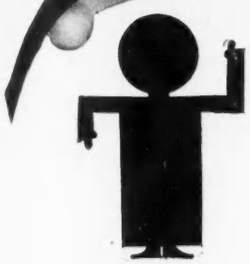
REG. U. S. PAT. OFF.

. . . and save processing and re-processing costs!

GONE are the days when unsaleable hosiery had to be accepted as an unavoidable production evil. Today, by using GARDINOL in the degumming and dyeing bath you can prevent lime soap specks and oil spots.

Even in the one-bath method streakiness and blotches do not occur. Re-processing costs are slashed. Chafing is reduced to a minimum. And GARDINOL gives you better penetration of heels and seams—more level dyeing of cotton feet and tops!

The Gardinol Corporation will be glad to lend a hand in your technical problems—to show you how GARDINOL has helped others get higher quality merchandise—*at lower costs.*



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CREATING Incomparable Quality in Hosiery Finishing and Establishing Production Figures that are truly amazing, the Paramount Dual Heat Machine will revolutionize and simplify your hosiery drying and finishing methods.

Compare this Machine with your present equipment. You will find that it requires less square feet of floor space per dozen than any existing method of finishing; less steam consumption — heating is direct; less power — a one-quarter horsepower motor operates the entire machine; less investment per dozen — reasonably priced; less upkeep — built to render years of service; and production possibilities with quality work that cannot be challenged.

Machines will pay for themselves in direct savings to you.

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Paramount Textile Machinery Company

Main Sales Office

538 S. Wells St., Chicago, Ill.

TEXTILE MILL NEWS

Duplan Silk Corp., New York, reports net profit for year ended May 31, 1939, of $420,182 compared with net profit of $331,436 for previous fiscal year.

Future-Tex Corp., New York, a subsidiary of Wesley Simpson, Inc., has been formed to promote patented fabrics for men's summer wear in cottons, rayons and blends.

Cetwick Silk Mill, Asheboro, N. C., closed for some weeks, under the supervision of C. T. Sutherland of the Georgetown Silk Mills, Durham, N. C., has been put into condition for the re-opening scheduled for early September.

Burlington (N. C.) **Mills Corp.** reports net profit for first six months of 1939 of $757,131, compared with $220,421 for similar 1938 period.

Katterman - Mitchell Co., thrower, Columbus, N. C., has sold its buildings, etc., to the Forest City (N. C.) Cotton Co., to be used as a cotton warehouse, until conditions permit it to be used as a manufacturing unit.

Maxton (N. C.) **Textile Corp.** has been organized and will install 30 looms. C. A. Hasty is president and W. R. Renner, vice-president. It is stated that wool-like fabrics will be made from synthetics.

Southern Tissue Mills, Inc., Rockingham, N. C., located at the old Midway Textile Mill, began operations early in September, with between 40 and 50 workers.

Duchess Fabrics Corp., unit of Burlington Mills Corp., Statesville, N. C., has been dismantled and the looms and other equipment moved to another unit in the group.

Queen City Textile Co., Allentown, Pa., has let general contract to George R. Culp, Allentown, for one-story addition, 54 x 87 ft., for warehouse.

Woonsocket (R. I.) **Rayon Co.** has closed its mill for an indefinite period.

Robert Cohen, West Warwick, R. I., is setting up plush looms in weave shed of old Phenix Mill. Looms were purchased from Spray, N. C., plant of Marshall Field & Co. Mr. Cohen was former partner in the Blackstone Plush Co., Clinton, Mass.

Century Ribbon Mills, Radford, Va., have let contract for one-story building to Fred B. Fuqua & Co., Inc., Lynchburg, Va.

American Viscose Corp.'s sixth unit at Roanoke, Va., will be re-opened and brought to full capacity this month for the first time in nearly two years; 48 machines in the unit have been completely re-built. Rumors indicate that company is looking over plant sites near Knoxville, Tenn.

Courtaulds (Canada) **Ltd.**, Cornwall, Ont., is proceeding with extensive reorganization program affecting every department in its viscose rayon yarn plant. It now has 20,000 spindles making it possible to produce 12,000,000 to 14,000,000 lb. of viscose yarns per year. Plant is now producing strong yarns for automobile tire fabrics.

Stark Bros. Ribbon Corp. of Canada, Ltd., Montreal Que., plans one-story addition to branch mill at Granby, Que.

Knitting Mill News

Cullman, Ala., citizens have completed plans for the establishment of a hosiery plant.

Valparaiso (Fla.) **Hosiery Mill** plans early rebuilding of portion of mill recently destroyed by fire. Loss estimated about $50,000, with equipment.

Tattnall State Prison, Alanta, Ga., will install a complete hosiery knitting plant.

Archer Hosiery Mills, Columbus, Ga., have approved plans for one-story addition to mill. Cost reported close to $35,000, with equipment. J. Norman Pease, Charlotte, N. C., is engineer.

Real Silk Hosiery Mills, Inc., and subsidiary companies report for first six months of 1939, a net profit of $63,557, compared with a net loss of $14,334 for the same six months in 1938.

Lowell (Mass.) **Hosiery Mills** have been sold to Collegiate Hosiery Mills, Philadelphia, Pa., and production will be started in September. The plant will manufacture boys' jacquard golf hose and will employ 250 persons. M. B. Reed is making arrangements for the opening.

Westfield (Mass.) **Knitting Mills** are removing plant to Manchester, N. H., where company will concentrate production in the future. Space has been leased in the Amoskaeg Mill properties, totaling about 10,000 sq. ft.

Samuel G. Camann, former owner of Tilton Hosiery Mills, is preparing to establish a new hosiery mill at Laconia, N. H.

Gotham Silk Hosiery Co., New York, N. Y., has awarded contract to the Riley Stoker Co., Worcester, Mass., for boiler units and auxiliary equipment for power house at new dyeing and finishing mill at Jasper and Butler Sts., Philadelphia, Pa., formerly the plant of Lehigh Silk

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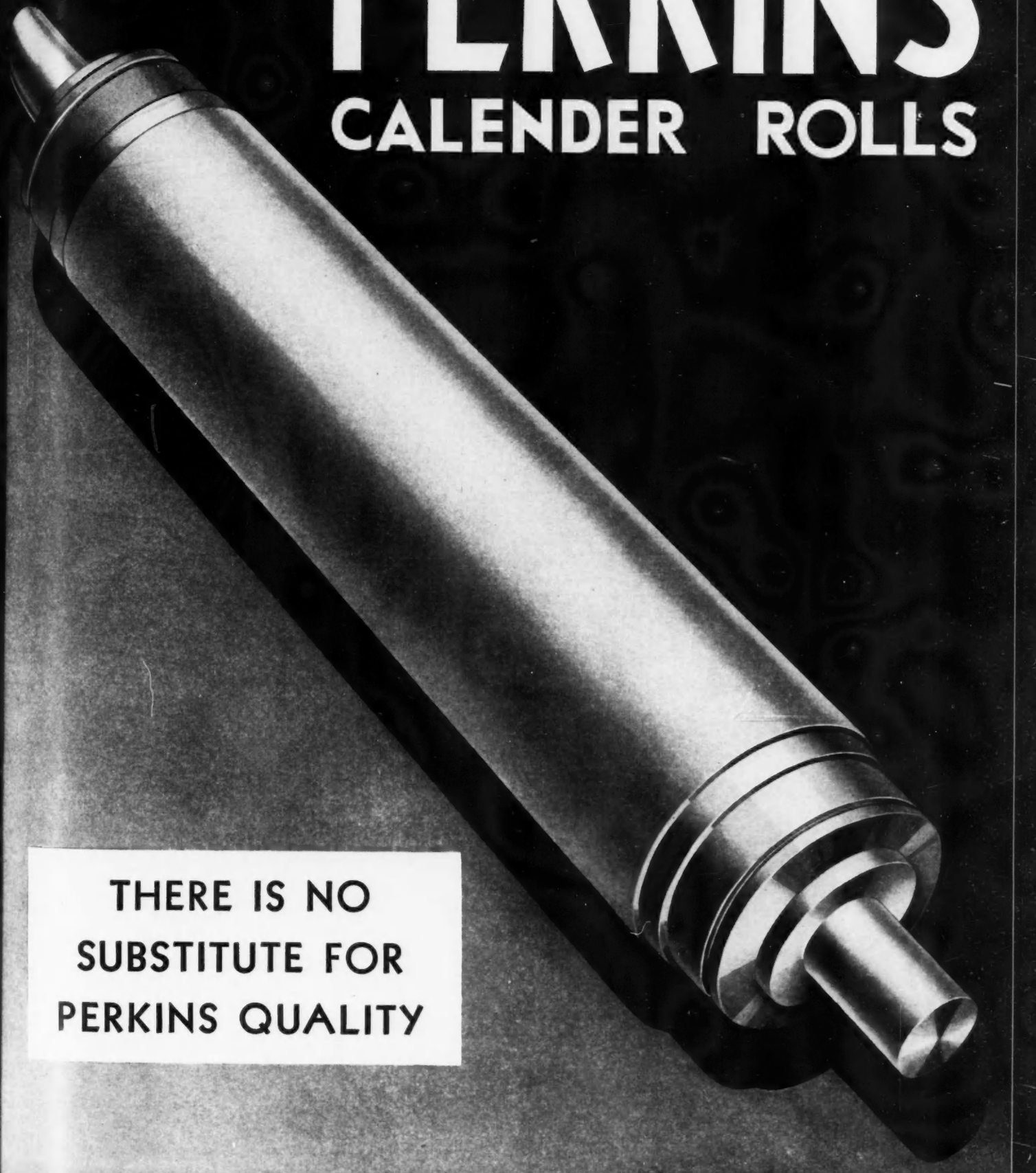

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Cutting rayon waste is just one of the duties performed in textile mills by Taylor-Stiles

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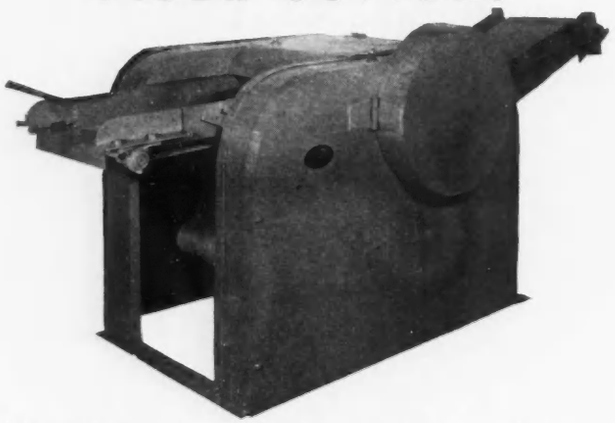

This machine cuts rayon waste, wool, etc., when exact lengths are not required. Other models cut yarn into exact lengths and take care of other textile cutting needs.

Let us know your cutting problem. We will describe the proper machine to solve it.

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Hosiery Co., now being remodeled and improved.

Julius Kayser & Co. reports net profit for fiscal year ended June 30, 1939 of $759,038 on net sales of $14,116,963, compared with net profit of $119,470 for previous year on sales of $14,729,516.

Wiscassett Mills Co., Albemarle, N. C., will install a new package dryer, from Philadelpia Drying Machinery Co., and two high-speed Whirlwind extractors, from Fletcher Works.

Park Hosiery Mills, Carthage, N. C., newly organized, has begun operations with an initial machinery set-up of 30 knitting machines.

Charlotte (N. C.) **Knitting Co.** is in hands of E. McArthur Currie as receiver.

Finer Full-Fashioned Hosiery Co., Pineville Road, Charlotte, N. C., is installing $5,000 worth of new machinery, which will increase the capacity of several departments.

Riverside Hosiery Mills, Haw River, N. C., have been purchased by E. G. Wilson and will be operated as the Wilson Hosiery Mills.

Henderson Hosiery Mills, Hickory, N. C., building and ground were sold at auction July 24 for $2,327. The mill has been in receivership.

Adams-Millis Corp. and subsidiaries, High Point, N. C., reported a net profit for first half of 1939 of $215,430 compared with $226,985 for the same period 1938.

Elizabeth James Mill No. 2, Marion, N. C. will erect a new dye plant and install two new knitting machines.

John L. Everett, Jr., Rockingham, N. C., announces plans for establishment of a hoisery mill in Rockingham.

Grenaco Hosiery Mills, Rockingham, N. C., which suspended operations about 6 months ago, has sold machinery to Whisnant Hosiery Mills of Hickory, N. C., and it will be moved to Hickory.

Saluda, N. C.—Business men are financing a new hosiery plant to cost $75,000.

Waldensian Hosiery Mill, Valdese, N. C., is doubling the capacity of its finishing department.

Lerner & Hirsch, Brooklyn, N. Y., have rented the Goodrich-Lenhart building in Hamburg, Pa., and are installing hosiery machinery; expect to employ about 40 people.

Kutztown (Pa.) **Textile Mills** plan rebuilding of portion of mill recently damaged by fire.

William F. Hofford, president of Hofford Hosiery Mills, Inc., Lehighton, Pa., will open a new mill at Weissport, Pa., employing 150. The mill will occupy the former Vertex Hosiery Mill building which was closed down five years ago.

Lock Haven (Pa.) **Hosiery Co.,** recently organized, has awarded contracts for construction of a one-story, 55 x 100 ft. mill in Allison Township. John A. Frey, president of the Chamber of Commerce, is in charge of plans.

Collegiate Hosiery Mills, Philadelphia, have purchased the Lowell (Mass.) Hosiery Mills and will operate as a branch plant.

Colonymaid, Inc., Philadelphia, has bought the Fashionmaid plant at Van Kirk and Keystone Sts., with 13 leggers and 7 footers. Company is a cooperative, with Rev. David C. Colony, president and Lewis Nussky, vice-president. Nearly 80 operatives contributed. They own the plant, will be paid union scale or better, and profits will be put back into new equipment. Rev. Colony was instrumental in starting the Colony Hosiery Corp. last fall on a similar basis with 60 workers. He has since started the Hulby Hosiery Co. with 33 workers.

Manning Hosiery Mills, Philadelphia, Harry Mantell, owner, has completed an addition. Mr. Mantell has bought 10 Reading 45-gage machines.

Vaughn Knitting Co., Pottstown, Pa., has let general contract to C. Francis Griffith, Pottstown, for two-story and basement mill, 125 x 150 ft., at High and Mantawney Sts.; cost over $800,000, with equipment. A. S. Kepner, Pottstown, is architect.

Palmetto Full-Fashioned Hosiery Mill, Inc., Saluda, S. C., is a new company, with capital of $50,000. Machinery costing $40,000 has been purchased, and will arrive Oct. 1.

Kain-Murphey Corp., Chattanooga, Tenn., has been organized and its plant was completed Sept. 1. Equipment was purchased from Chicamauga Knitting Mills. Company will manufacture knitted underwear, polo shirts, etc., and will employ approximately 200. John G. Kain is president and William Murphey, vice-president, both being officers also of the Signal Knitting Mills in Chattanooga.

Rutledge (Tenn.) **Hosiery Mill** has recently been organized with a capitalization of $100,000.

Denton, Tex., citizens are constructing a building which will house a plant on women's and children's rayon underwear. The officers are: President, J. Holford Russell; vice-president, Norris Russell, and secretary-

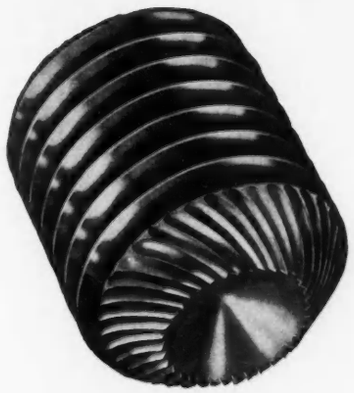

Fig. 1641
Pat. App. for

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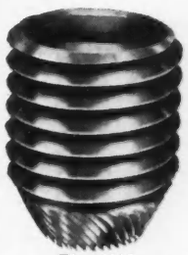

Fig. 1645
Pat. App. for

Fig. 1646
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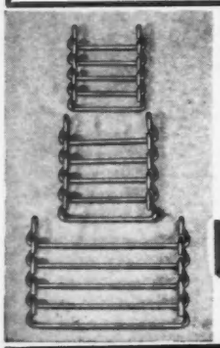

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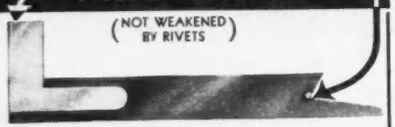

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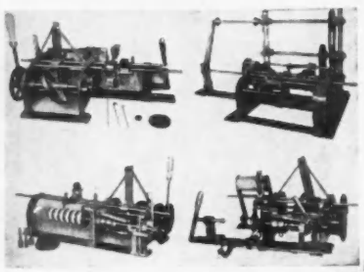

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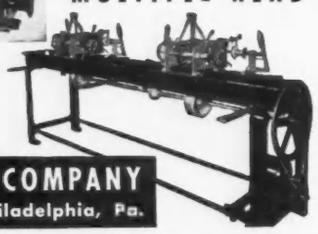

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SPECIAL REPORTS

FALL RIVER, MASS. — GREENVILLE, S. C.

TEXTILE MILL NEWS

treasurer and general manager, R. B. Newman.

Northern Glove & Mitten Co., Green Bay, Wis., has plans for one-story addition; cost estimated close to $25,000, with equipment. Harry W. Williams, Green Bay, is architect.

Karl Beer Knitting Mills, Ltd., organized and owned by refugees from Vienna, has opened for business at 15 Mt. Royal Ave. West, Montreal, Que., making knitted outerwear, jersey cloth, etc.

Processing Plant News

Sterling Textile Co., 56 Tyler Street, Springfield, Mass., a textile dyeing concern, has leased 20,000 square feet in former Palmer Carpet Co., Palmer, Mass., and will move its equipment there as soon as alterations are completed.

Jersey Dyeing Corp., East Newark, N. J., has leased space in building at 900 Passaic Ave., totaling about 11,000 sq. ft., and will occupy for new plant.

Ming Toy Dyeing Co., Haledon, N. J., suffered fire damage estimated at $75,000 on Aug. 14. Fire was confined to the finishing and receiving department.

Newton, N. J.—About 75 former employes at local mill of Associated Dyeing & Printing Co., Paterson, N. J., operated as Sussex Works, are arranging a cooperative enterprise, together with a group of local business men, to take over the plant and resume operations.

National Dyeing & Printing Co., Paterson, N. J., has arranged for RFC loan in amount of $700,000, and will use for general improvements and operations. A preferred stockholder has sued to enjoin this arrangement.

Rock Hill (S. C.) Printing & Finishing Co., has installed a loop dryer made by Philadelphia Drying Machinery Co. for its rayon department. Latter firm is represented in South by F. W. Warrington Co.

Cen-Tex Wool & Mohair Co., San Marcos, Tex., the first wool and mohair scouring mill in Texas, will be opened about Oct. 1, with about 100 workers.

J. L. Stifel & Sons, Wheeling, W. Va., have installed special machinery, and a separate unit for spun-rayon fabrics has been started. The company has also put into operation another new vat-dye unit for drills and jeans.

RAW COTTON NOTES

Arthurdale, in Preston County, West Virginia, is the new "birthplace" of the Rust cotton pickers. Machines are being manufactured there by the Arthurdale Farm Equipment Corp., of which the American Co-Operatives, Inc., are managers. The general business office of the Rust Cotton Picker Co. will remain in Memphis, Tenn. Mack Rust is in charge of production at Arthurdale and states that about 15 pickers will be ready for fall operations.

Farm Security Administration has gone in for cotton houses, it seems, as it is building one in Coffee County, Ala., at a cost of $1,280, and may build others throughout the South later. It's not a new idea to people in the cotton-textile game, but it is a new way for the F. S. A. to spend money.

At a meeting of cotton growers, held recently in Phoenix, Ariz., Prof. E. H. Pressley, of the University of Arizona, urged that a drive be made to promote Pima cotton. As a result of a three-month survey in eastern cotton-textile plants which he has just completed, he advocates permanent identification labels showing variety and locale; better packaging of Pima cotton to make an outstanding bale; and, selling under Federal classifications. Pima and SxP cotton, both types of American Egyptians, are used for fabrics and yarns which require extra long staple and high breaking strength. These cottons are strongly competitive with imported Egyptians.

Staple Cotton Cooperative Association, Greenwood, Miss., of which W. M. Garrard is manager, has handled its members' loan cotton to their benefit according to its most recent monthly report. In this report Mr. Garrard states that, due to a good demand for loan cotton, 52,209 of the 86,111 bales pledged to the loan by association members had been repossessed and sold with a net equity of $2.95 per bale to the grower.

Other Delta cotton news is to the effect that on Aug. 11, cotton stock on hand in all warehouses totaled 403,046 bales, compared to approximately 300,000 bales at the same time in 1938. At this writing it is anticipated that the Delta will have a million bale harvest, of which less than half will be long staple.

ADVERTISING PAGES REMOVED

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1. **Dryers.** Proctor & Schwartz, Inc. Bulletin No. 40 describes company's package-yarn dryers and pictures a group of typical installations in representative mills.

2. **Rayon.** North American Rayon Corp. Booklet describes the history of rayon and gives interesting facts about how North American rayon is made and used, proper washing and cleaning methods, etc.

3. **Knitting Machinery.** Wildman Mfg. Co. Illustrated folder contains sample of rayon fabric and photograph of company's machine on which it is knitted.

4. **Drying Equipment.** Proctor & Schwartz, Inc. Bulletin No. 168 describes company's Multipass Air-Lay dryer for rayon and other types of piece goods, and pictures several installations.

5. **Fabric Testing.** North American Rayon Corp. Booklet outlines company's fabric-testing program under which cloths made from its yarns are tested by an impartial laboratory for serviceability.

6. **Loom Switch.** Westinghouse Electric & Mfg. Co. Bulletin F-8474-A describes new loom switch and contains brief information on company's loom motors.

7. **Wetting Agents.** Rohm & Haas Co., Inc. Bulletin titled "Triton W-30" contains study of wetting agents, with special reference to the titled product.

8. **Skein-Dyeing Machine.** Smith, Drum & Co. 12-page booklet pictures company's new type skein-dyeing machine, and describes its construction, operation and advantages; another leaflet compares this machine with company's older and now practically obsolete reel-type skein-dyeing equipment.

9. **Rayon Manufacture.** Oscar Kohorn & Co., Ltd. Booklet describes Kohorn short-ageing process, said to produce viscose in 36 hr.

10. **Centrifugals.** American Laundry Machinery Co. Catalog sheet describes company's underdriven and O.T. type centrifugal extractors; gives data on materials used in construction, etc.

11. **Processing Equipment.** Smith, Drum & Co. Booklet pictures and describes briefly company's line of dyeing, mercerizing, and finishing equipment.

12. **Motor Starter.** Westinghouse Electric & Mfg. Co. Bulletin F-8474 describes new manual starter for motors up to 7½ hp.

13. **Tenter Dryer.** Riggs & Lombard, Inc. 4-page catalog folder describes and illustrates company's cloth tenter dryer for drying mixtures of rayon, wool, and cotton.

14. **Heddles.** Steel Heddle Mfg. Co. Comprehensive catalog describes wide variety of flat steel heddles and accessories.

15. **Synthetic Resins.** Rohn & Haas Co., Inc. Booklet describes company's range of Rhoplex Dispersions — clear, colorless, synthetic resins; leaflet contains similar information concerning Rhoplex W-66, a recent addition to the line.

16. **Staple Fiber.** Oscar Kohorn & Co., Ltd. Two leaflets describe company's viscose staple fiber with wool characteristics, one containing photomicrographic views.

17. **Antichlor.** Virginia Smelting Co. Bulletin R-3, a reprint of a technical article on the subject of liquid sulphur dioxide as an antichlor.

18. **Reeds.** Steel Heddle Mfg. Co. Booklet describes company's line of pitch-band and all-metal reeds.

19. **Stock Dryer.** Philadelphia Drying Machinery Co. Bulletin SD-5 describes company's stock dryer for rayon staple and other fibers.

20. **Finishing Agents.** Rohm & Haas Co., Inc. Leaflet titled "Rhonite Emulsions" describes line of urea formaldehyde resins for textile finishing manufactured by this company.

21. **Dye Beck.** Riggs & Lombard, Inc. Data sheet describes company's silk and rayon dye beck with stainless steel or cypress tub.

22. **Harness Frame.** Steel Heddle Mfg. Co. Illustrated catalog describes wide variety of harness frames and accessories for various services.

23. **Loop Dryer.** Philadelphia Drying Machinery Co. Bulletin L-5 describes automatic loop dryer for use in finishing crepes, pile fabrics, knit goods, etc.

24. **Twisters.** Fletcher Works, Inc. Bulletin 50 pictures, describes, and lists advantages of company's Apex twisters.

25. **Stock-Dyeing Machine.** Riggs & Lombard, Inc. Catalog sheet describes company's stock-dyeing machine for rayon and other types of stocks.

26. **Centrifugal Extractor.** Tolhurst Centrifugal Division, American Machine & Metals, Inc. Illustrated, 6-page bulletin describes company's recently introduced "Suprex" high-speed extractor and contains data on its construction, savings made possible, etc.

27. **Doubler - Twister.** Fletcher Works, Inc. Bulletin No. 39 illustrates and gives data on company's Duplex doubler-twisters.

28. **Waterproofing Agents.** Jacques Wolf & Co. Booklet describes Luposec, a waterproofing agent manufactured by this company.

29. **Steamer and Conditioner.** Riggs & Lombard, Inc. Catalog data sheet describes positive-pressure yarn steamer and conditioner with capacity of 750 lb. of yarn.

30. **Warp Sizing.** Charles B. Johnson. July-August issue of "Rayon Warp Sizing Specialist" contains items describing synthetic fibers at the new New York World's Fair and the part improved machinery has played in synthetic yarn advancement.

31. **Winders.** Fletcher Works, Inc. Bulletin No. 51 describes Simplex single- or double-deck winders.

32. **Soaps.** Colgate-Palmolive-Peet Co. Bulletin No. S-7 describes applications of soaps and soap products in textile processing.

33. **Spindles.** Fletcher Works, Inc. Bulletin illustrates and describes company's spindles for ring twisters and spinners, which have an oil reservoir said to hold a supply sufficient for a year's constant operation.

34. **Softeners.** Jacques Wolf & Co. Booklet describes cationactive softening agent produced by this company, and designated Lupomin.

35. **Organic Chemicals.** E. I. du Pont de Nemours & Co., Inc. Bulletin I-A contains 68 pages describing organic chemical specialties manufactured by DuPont.

36. **Soap Analyses.** Colgate-Palmolive-Peet Co. Bulletin S-8 contains an explanation of the chemical terms usually appearing on chemical analyses of soap and soap products.

37. **Extractors.** Fletcher Works, Inc. Bulletin 49-A describes and pictures company's Standard extractor; Bulletin 52 gives information on Whirlwind extractor; and Bulletin 42-A describes and pictures Junior extractor.

38. **Wetting Agents.** Jacques Wolf & Co. Wetsit, a synthetic wetting agent for use in textile processing, is described in a recently published bulletin.

39. **Finishing Agents.** E. I. du Pont de Nemours & Co., Inc. Bulletin No. 2-A describes in 40 pages Avitex textile finishing agents as used on rayon and other materials.

40. **Fatty Acid Derivatives.** Colgate-Palmolive-Peet Co. Booklet No. S-4 describes textile processing with Arctic Syntex A and T, fatty-acid derivatives, including comparison of properties of these products with those of soap.

41. **Palmer Blankets.** Albany Felt Co. 16-page booklet describes Palmer blankets as manufactured by this company, and gives information on their proper care.

42. **Detergent.** Jacques Wolf & Co. Booklet describes penetrative detergent and degumming agent known as Oranap.

43. **Organic Solvents.** E. I. du Pont de Nemours & Co., Inc. Bulletin No. 3-A describes company's organic solvents and plasticizers; includes tables on miscibility, solubility, and other properties.

44. **Sanforizing Blankets.** Albany Felt Co. Interesting booklet describes care and operation of Sanforizing blankets.

45. **Dyes.** Ciba Co. Color card No. 1451 shows acid colors which will dye rayon, but leave acetate uncolored.

46. **Processing Compound.** Stein, Hall & Co., Inc. 8-page reprint of technical article dealing with "Rayon Fabric Processing."

47. **Cuprammonium Rayon.** American Bemberg Corp. Booklet contains information on merchandise made of Bemberg rayon; includes data on processes used, selling points, and answers to questions frequently asked.

48. **Chemicals.** Columbia Alkali Corp. Pocket-size booklet lists in easy-to-find form company's chemical products; in-

cluded are data on types available, packages, and properties.

49. Air Conditioning. Parks-Cramer Co. August issue of "Parks' Parables" contains 14-page article on "Rayon—and Air-Conditioning"; covers requirements of yarn producing, weaving, and knitting plants.

50. Chemical Products. Niacet Chemicals Corp. Recent catalog contains 36 pages listing company's products, specifications, properties, uses, etc.; included is a table showing at a glance properties of company's chemical products.

51. Warp-Tying Machinery. Barber-Colman Co. 4-page bulletin illustrates and describes company's equipment for tying in warps behind the loom.

52. Detergents. Warwick Chemical Co. Technical bulletin describes company's synthetic soap known as Sulfanole P.B.

53. Tint Color Card. United States Testing Co., Inc. Color card shows company's certified tints for viscose rayon, acetate, and raw silk; contains many actual samples of materials tinted.

54. Winders. Foster Machine Co. Pamphlet A-92 describes company's equipment for winding rayon and other yarns; contains data on adaptability, mechanical details, design features, as well as photographs of yarn-conditioning and other attachments.

55. Clothroom Machinery. Hermas Machine Co. 4-page leaflet pictures and briefly describes fifteen of company's machines for accomplishing various clothroom tasks.

56. Sizing Compound. Stein, Hall & Co., Inc. Reprint of technical article discussing "Sizing and Finishing."

57. Color Card. Ciba Co. Card No. 962 shows dyeings of wool-viscose fabric, with white acetate effects.

58. Fans. B. F. Sturtevant Co. Catalog No. 444 describes company's Axiflo pressure fans used for a variety of services in rayon and other textile plants; included are illustrations of various arrangements possible, capacity tables, and dimensional data.

59. Dyes. National Aniline & Chemical Co., Inc. Color cards Nos. 208, 210, 213, 217, 219, and 221 describe dyes recently added to company's line of colors for rayon yarns, rayon-acetate fabrics, cotton-wool mixtures, etc.

60. Extractor. Haring & Stephens Co. Catalog leaflet No. 13,038 pictures and describes company's automatic extractors.

61. Detergent. National Aniline and Chemical Co., Inc. 44-page booklet describes Nacconol NR, company's new all-purpose, surface-active, organic detergent.

62. Specialty Chemicals. Glyco Products Co., Inc. Comprehensive catalog of specialty chemicals covers emulsifying agents, glycol and glyceryl esters, synthetic waxes, synthetic resins, plasticizers, and flexibilizers.

63. Dye Tubes. Adolff Bobbin Co., Inc. Leaflet gives brief information concerning company's dye tubes.

64. Acetate Colors. Ciba Co. Color card No. 1725 shows company's line of Cibacet colors for dyeing acetate or mixtures of cotton or rayon and acetate.

65. Fiber Lubrication. Glyco Products Co., Inc. Reprint of technical paper describing "Lubrication of Textile Fibers."

66. Processing Chemicals. Procter & Gamble Distributing Co. 48-page booklet describes properties of Gardinol and its uses in processing silk and rayon yarns, woven and knitted fabrics, and hosiery.

67. Flameproofing. Glyco Products Co., Inc. Technical paper in reprint form discusses "Modern Flameproofing."

68. Viscose Rayon Dyes. Ciba Co. Color card No. 1653 shows company's line of Chlorantine fast colors on viscose rayon.

69. Rayon Spools and Pots. Adolff Bobbin Co., Inc. Leaflet pictures and describes company's seamless aluminum spools and pots for rayon yarn manufacture.

70. Processing Cards. Procter & Gamble Distributing Co. Series of handy processing cards cover scouring and dyeing woven rayon piece goods, rayon and acetate soaking, yarn finishing, scouring and dyeing knit tubular rayons, dyeing and scouring of yarns, rayon hosiery scouring and dyeing, and scouring and dyeing of acetate fabrics.

71. Dyes. Ciba Co. Color card No. 1208 shows company's line of Rosanthrene and Diazo colors on viscose rayon.

72. Underdriven Extractor. Haring & Stephens Co. Leaflet No. 51,037 illustrates and describes company's underdriven extractors, contains information on construction materials used, and data on size, capacity, floor-space, etc.

73. Glue. Paisley Products, Inc. Two leaflets describe company's shuttle glue; and steel-set glue, for repairs in the machine shop.

74. Wetting Agent. American Cyanamid & Chemical Corp. Data sheet describes physical characteristics, solubility, stability, forms available, and uses of company's new series of Deceresol wetting agents.

75. Corrosion-Resistant Finishes. Heresite & Chemical Co. Leaflets describe company's air-drying finishes, baking finishes, and gloss black utility enamel, emphasizing their protection against acids, alkalis, oils, organic solvents, and other metal-corroding substances.

76. Fine Chemicals. Carbide & Carbon Chemicals Corp. Bulletin titled "Fine Chemicals" gives technical data on wide variety of company's chemical products.

77. Industrial Chemicals. Dow Chemical Co. 80-page, spiral-bound data book contains technical information on a wide variety of industrial chemicals, indigoid dyes, and anthraquinoine dyes manufactured by this company; included are tables showing properties of organic liquids, properties of inorganic solids, and typical applications of Dow industrial chemicals.

78. Synthetic Organic Chemicals. Carbide & Carbon Chemicals Corp. Spiral-bound bulletin gives technical data on company's synthetic organic chemical.

79. Metal Protection. Heresite & Chemical Co. Reprint of technical article discusses the subject of "Corrosion and Protection of Metals in the Textile Industry."

80. Chemical Products. American Cyanamid & Chemical Corp. 24-page booklet describes briefly company's complete line of products for the textile industry, and indicates for what processes specific products are recommended.

81. Emulsions. Carbide & Carbon Chemicals Corp. Booklet contains data on various methods of preparing emulsions for a wide variety of uses.

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